THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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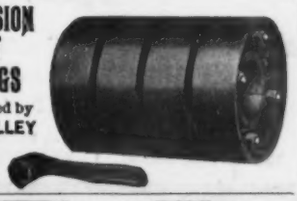

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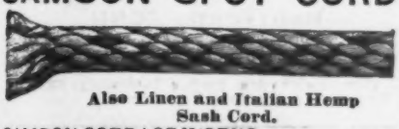

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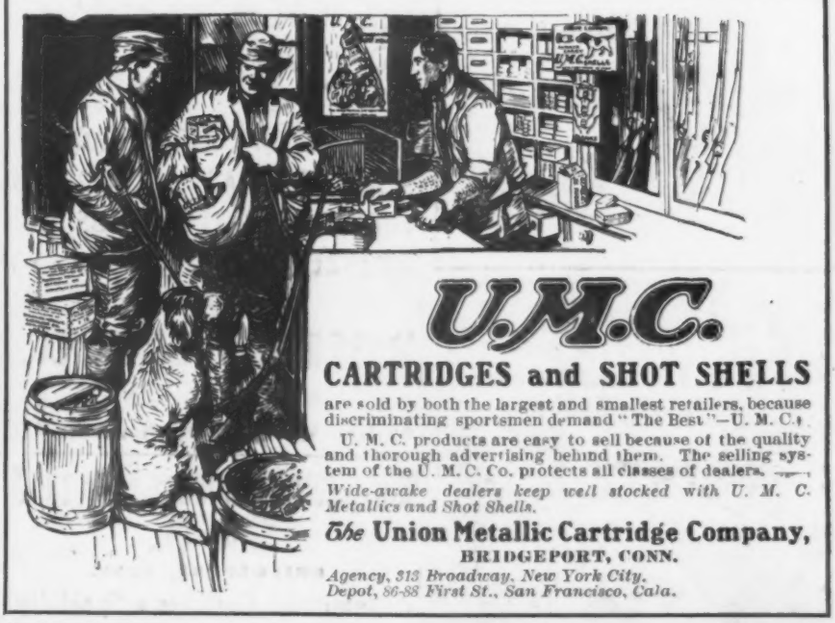

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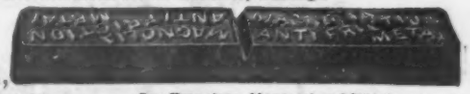

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THE IRON AGE

New York, Thursday, November 16, 1905.

A New Heavy Ridgway Planer.

An unusually heavy planer, particularly designed for the handling of such work as large engine parts, was recently built by the Ridgway Machine Tool Company, Ridgway, Pa., for Mackintosh, Hemphill & Co., Pittsburgh, Pa. The machine weighs in the neighborhood of 75,000 pounds and is driven by a Thompson-Ryan variable speed motor having a two to one variation. A test of the power of this machine was taken in the shop, and four cuts 1 inch deep by ⅛ inch feed were carried simultaneously, the power required to carry these cuts being 35 horsepower.

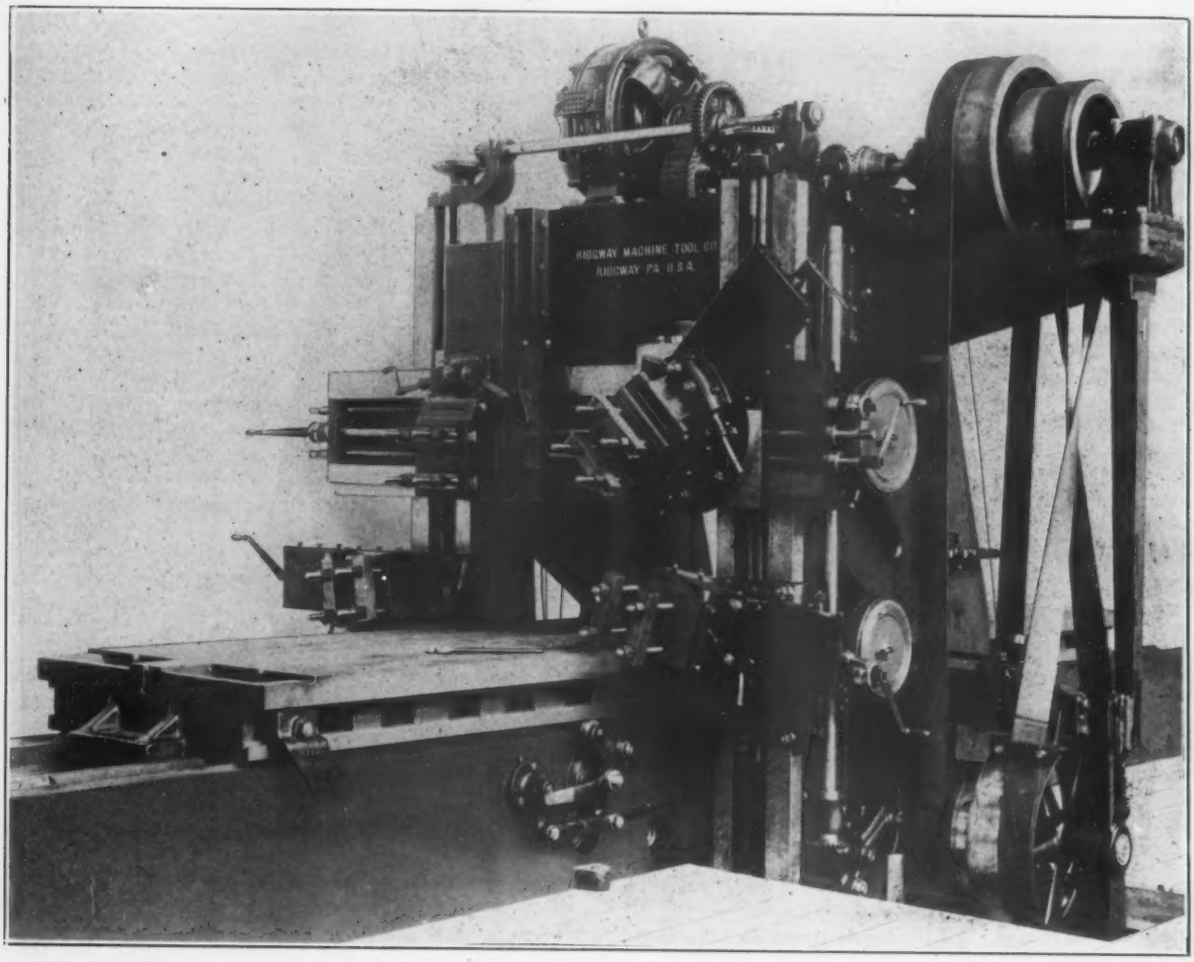


Fig. 1.—A Heavy Planer Built for Mackintosh, Hemphill & Co., by the Ridgway Machine Tool Company, Ridgway, Pa.

Fig. 1, a view of the working side of the planer, shows its four tool heads, two on the cross rail and one on each upright. The view given in Fig. 2 brings out the driving arrangement clearly and shows one of the most striking features of the tool, the improved design of the housings. It will be remembered that a very similar type of housing is employed in the Ridgway heavy boring mill described in *The Iron Age* March 30, 1905. These housings are an example of the general endeavor to make the machine absolutely rigid in all of its parts.

A very stiff construction has been followed in the bed, the side walls of which are tied by heavy cross girts, and at the gear space the bed is reinforced by double walls. The bed is approximately twice as long as the table, so that the latter never overhangs. The table is of complete box form, unusually deep and is arranged to contain chips and dirt, preventing their falling between the tracks. Through large holes provided at the sides the chips may be withdrawn from time to time. The standard table has T slots and reamed holes, but any design can be furnished without extra charge. The rack is of steel, with teeth 11 inches wide and of two pitch. The uprights, of which mention has already been made, are of box form and are finished to receive side heads, whether the latter are ordered or not, so that the heads can be attached at any subsequent time. All the gears entering into the drive are of steel, and all pinions are steel forgings, with 15 or more teeth to insure smooth operating. A ring oiling bearing is provided on the driving shaft next to the driving pinion, and all the bearings wherever possible are self oiling.

The cross rail is of box form and long enough to allow the cross rail heads to be used at any position across the entire width of the planer. In order that the strain of cutting may not be transmitted across the face of the upright, which is the weakest part of the cross rail, there are clamps on the inside edges of the uprights in addition to the gibs on the outside. The tool slides of the cross rail and side heads are swiveled and can feed at any angle. The tool aprons of the cross rail heads are extra wide and have T slots, allowing the tools when set on the inside edges to come close together. The side heads will travel entirely below the table and have exceptionally long bearings on the uprights. Their tool aprons are made flush with the tops of the shoes, allowing the tools to be set so as to be used clear to the top of the work. The crank wrench for adjusting and traversing each head vertically is on the head itself.

The feed for the heads on the cross rail is adjusted at the end of the cross rail and for the side heads on the

side heads themselves. Any desired feed within the range specified can be instantly obtained by means of notched plates while the planer is in motion, even on its shortest stroke. The reciprocating motion for operating the feed is obtained from the running gearing by a patented device, which gives the maximum amount of feed required with only about 3 inches of table movement, and no feed boxes are used. As the amount of feed is governed in the circular disk shown at the end of the cross rail, and as the function of the feed is performed at the commencement of the table movement, it is not necessary to extend the table movement beyond the length of the work more than ½ inch for minimum feed, varying from that to 3 inches to obtain the maximum. All the heads therefore have feeds that are independent both in amount and direction.

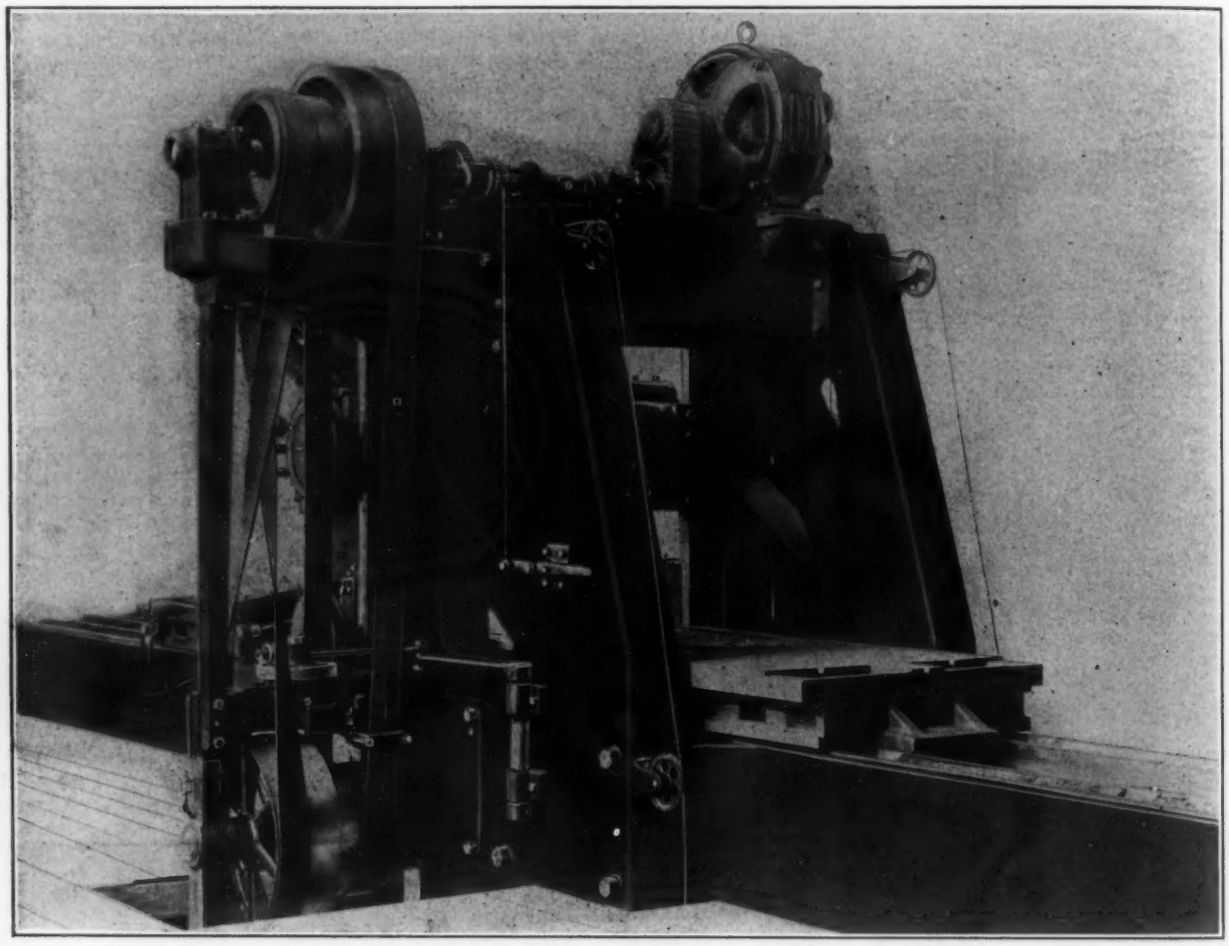


Fig. 2.—View from the Rear, Showing the Specially Designed Housings and the Drive of the New Ridgway Planer.

Sintering Plant for South Chicago.—The Illinois Steel Company, Chicago, has decided to erect a sintering plant at South Chicago. The plant will be erected according to the specifications of Hoover & Mason, consulting engineers, Chicago, and will be similar in design to the plant which this company recently completed and is now operating experimentally near Youngstown, Ohio. At the South Works there is an accumulation of several hundred thousand tons of flue dust, and if this process proves successful this will be agglomerated for blast furnace use. Nodules from the sintering plant near Youngstown show an excellent physical structure of sufficient strength to withstand the burden of furnace operations, while the percentage of iron they contain runs as high as 60 per cent. At the South Works probably the first experiments in this country for the utilization of flue dust will be carried on. All of the experiments providing for the briquetting of flue dust have hitherto proved unsuccessful. Most of the new processes provide for the agglomeration of this dust in kilns similar to those used in the manufacture of cement, and the indications are that an early solution of this problem is at hand.

Protecting Lake Navigation Interests.

The International Waterways Commission granted a public hearing November 10, in Buffalo, to the lake interests and the power companies at the Soo. This hearing was upon rules which the commission has formulated, but has not yet adopted, for the regulation of the use of the water of St. Mary's River by the power companies which have established works at the Soo. Under the rules as formulated the power companies will not be permitted to use more than 10,500 cubic feet of water per second. The commission is making all other interests secondary to the interests of the lake commerce.

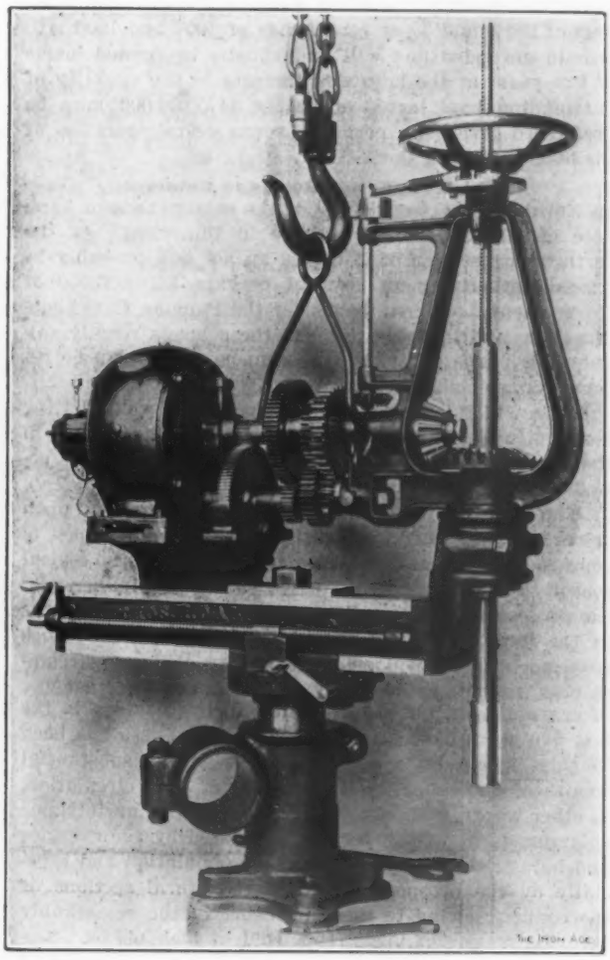
The proposed rules and regulations provide that the level of Lake Superior shall be maintained at a certain point above mean tide at New York, that no company shall be granted permission to use the water of St. Mary's River without the joint approval of the Secretary of War of the United States and the Minister of Public Works of Canada and that no grant for the use of the water shall be for a period longer than 20 years. The engineers of the commission state that the use of 4000 cubic feet of water per second by the power companies would lower the level of Lake Superior about 1-5 foot and the use of 6000 cubic feet per second would lower the level about 1-3 foot.

The New England Foundrymen's Association held its monthly meeting at the Exchange Club, Boston, November 8, with President John Magee in the chair. E. V. French of the Associated Factory Mutual Fire Insurance Company made an address on "Fire Protection Engineering with Special Reference to Foundries," which was followed by a discussion. The Yale & Towne Mfg. Company, Stamford, Conn., and the North & Judd Mfg. Company, New Britain, Conn., were elected to membership. There was the usual dinner.

The Dallett Portable Drills.

For several years the Thos. H. Dallett Company, Philadelphia, Pa., has manufactured portable drills adapted for motor drive, using motors of its own make and planetary gear reductions. Now it is redesigning its entire line of portable drills, adapting them for motor drive, using standard motors, and the No. 4 and No. 5 are now upon the market.

The engraving herewith shows one of the No. 5 machines equipped with a 3 horse-power variable speed Northern electric 220-volt motor. The No. 4 is practically identical in general design. These drilling machines are supported when in use by a base containing two bearings, one vertical and one horizontal, allowing the machine to be used for either vertical or horizontal drilling. This base is provided with four slotted lugs by which it can be bolted on or near the piece to be drilled or bored. In the base is fitted a post, adjustable in position to allow the use of different lengths of drills and sockets in the spindle. On the top of the post is cut a worm wheel, over which is fitted a cap washer, containing on one side a bearing with a worm, which meshes in the worm wheel on the post, by which it can be entirely revolved around the axis of the base.



A No. 5 Motor Driven Dallett Portable Drill.

The frame of the machine rests in a groove planed across the top washer and is clamped firmly in place by a square washer on the top and a stud tapped into the post. The frame is movable lengthwise at right angles to the axis of the base, being actuated by a side screw, and has a clamp on the front end to receive the drill head. This drill head consists of a frame with spindle, feed screw and feeding device. The feeding mechanism in the No. 4 and No. 5 drills consists of a pair of bevel gears, feed shaft, rocker, pawl plate, pawl, ratchet wheel, feed nut and feed screw. The latter presses directly upon the top end of the spindle, the thrust being taken by a fiber washer and is coupled to the spindle by a yoke nut. The connecting rod between the crank and rocker pawl is fitted with a spring, which can be set for any pressure of feed, so that when this pressure is exceeded the spring will be compressed and the feed cease to operate until the excessive pressure of feed is relieved, thus affording an automatic relief.

Change of feed from one tooth to 17 can be effected by shifting a thumb latch, no wrench being required. The No. 4 and No. 5 drills are fitted with a back gear, which is thrown in mesh by an eccentric shaft, the latter being locked in place with a thumb screw. When the back gear is in use the key is unclutched from the cone shaft by throwing out a clutch key.

The motors used are variable speed motors, sufficiently powerful to operate the machine to the extreme limits of its capacity without undue heating. The bearings of the motor are so arranged that the motor is equally serviceable in whatever position the machine may be placed.

The No. 5 portable drill has a radial adjustment of 30 inches, drilling at one setting anywhere over a surface of 72 inches outside diameter and 22½ inches inside diameter. The spindle is provided with a No. 5 Morse Taper, is 2 1-16 inches in diameter, has a traverse of 20 inches and a range of speeds from 19 to 90 revolutions per minute, with a feed of from 0.005 to 0.075 inch per revolution of spindle. The net weight of the machine complete is 1300 pounds.

The No. 4 machine, as stated before, is practically identical in design with the No. 5, the arm having a reach of 28 inches, drilling at one setting anywhere over a surface of 56 inches outside diameter and 16 inches inside diameter. It has a spindle 1 11-16 inches in diameter, provided with a No. 4 Morse taper, and has a traverse of 12 inches. The range of speeds is from 29 to 153 revolutions per minute, with the same feeds per revolution of spindle as the No. 5 drill. The adjustment of the post in the base is 6 inches. The net weight is 765 pounds.

These machines are provided with a sling for convenient handling by crane and are extensively used where a portable machine is required for doing heavy or awkward drilling or boring. They are also very well adapted for a large range of regular work when not employed for portable purposes, as these two sizes of machines, being powerfully back geared, will do the same work that a very large standard drill press or radial drill can accomplish. The capacity of the machines for different purposes is only limited by the ingenuity of the operator in using them in various situations.

The other sizes of Dallett portable drills are rapidly being adapted for driving by standard motors, and the company will in a short time be prepared to furnish any of its different drilling machines so equipped.

British Mineral Production.—Statistics of the quantity and value of minerals produced in Great Britain in 1904 and a comparison with 1903 have been issued by the Home Office at London. The value of all minerals at mines and quarries was £97,477,639 in 1904, as compared with £101,808,404 in 1903. The production of coal in 1904 was 232,428,272 gross tons, as against 230,334,469 tons in 1903; of iron ore, 13,774,282 tons, as against 13,715,645 tons; of iron pyrites, 10,287 tons, against 9639 tons; of lead ore, 26,374 tons against 26,567 tons; of limestone (other than chalk), 12,043,135 tons, against 12,222,971 tons; of manganese ore, 8756 tons, against 818 tons; of tin ore dressed, 6742 tons. against 7382 tons; of fluorspar, 18,160 tons, against 11,911 tons; of bog ore, 4543 tons, against 4090 tons; of bauxite, 8700 tons, against 6128 tons; of zinc ore, 27,655 tons, against 24,888 tons.

Official sanction has been given recently to the use of basic Bessemer steel in the erection of bridges for Austrian State railroads. In other countries, notably Germany and Switzerland, Thomas steel has been sanctioned for bridge building, while Austria has required until now that in all such construction open hearth steel be employed.

Currency Expansion and Commodity Values.

A factor that bears in an important way upon the course of prices for iron and steel and the general commodity market as well is the increase in currency in the United States, both gold and in national bank notes. The following discussion of the subject in the New York *Sun* of November 5 raises a number of points well worthy of consideration:

The Bond Refunding Act Cheapened Money.

The announcement last week that the national bank note circulation throughout the country had increased during the month of October $8,249,280 and in the year thus far $67,126,749 again draws attention to the great part played now and during the last few years by the operations of the Government bond refunding act passed in March, 1900. At the time this bill became a law popular scrutiny was far more occupied with those provisions of it relating to the establishment and security of the gold standard than with those other sections which made possible a great increase in the circulating medium, and speculators and banking interests as well only grasped with extreme slowness the true meaning of the measure. It is now apparent to every one, however, that to the bond refunding act is due almost as much as to the increased production of gold in the country the general cheapness of money that has prevailed here in the last five years, and no better time can be taken than the present for a review of what has been accomplished by the act and for a forecast of the results that may reasonably be expected from it in the future. The act itself in its provision bearing upon bank note circulation provided that all the bonds of the United States bearing 3, 4 and 5 per cent. per annum and maturing in 1904, 1907 and 1908 might be refunded into bonds not maturing until 1930 and drawing interest at the rate of only 2 per cent. The Secretary of the Treasury was authorized to exchange the outstanding bonds for the new ones upon terms that invited the transaction on the part of bondholders, and following the passage of the act the conversion of the bonds proceeded in a rapid way. As the old outstanding bonds sold at high premiums they were available only in a narrow way for purposes of bank note circulation, since the national banks buying the bonds for such use would have to lose a large sum in interest on the premiums paid; but the premium on the new 2 per cent. bonds was of course relatively slight and the banks could use these for purposes of circulation very advantageously.

Other Influences Which Aided Currency Expansion.

Aside from all this the refunding act raised the limit at which the Government bonds could be used for bank note circulation to a price of par, or 100, instead of 90, the old figure, and reduced from 2 to ½ per cent. the Government tax on circulation. Further, the new law amended the national bank act so as to allow of the establishment of national banks with a much smaller capital than had previously been possible. But this was not all. The Secretary of the Treasury some time after the passage of the refunding act made such a reconstruction of the Federal statutes governing the deposit of public moneys in the national banks as to permit the substitution of other guarantees than those of Government bonds for the security of the sums of money thus deposited. This allowed the banks to withdraw from the Treasury of the United States the Government bonds previously deposited by them for the purpose named and to use these bonds for the creation of further bank note circulation, and indeed the admitted policy of the Treasury Department during the period of Mr. Shaw's incumbency has been to enlarge bank note circulation by every possible means.

Natural forces, too, have worked along these same lines, notably by reason of the appearance of a deficit in the Government's revenues. For more than a year back the Government has been paying out more money than it has received, and it has thus been compelled to make requisition upon the Government moneys held by national banks. As it has drawn upon these deposits the Government bonds held against the deposits have been compulsorily released and these have gone into new bank note circulation along with the others. The joint effect of all these forces has been to stimulate bank note circulation as in a forcing house, and bank currency has, in fact, risen from $216,374,795 just before the passage of the bond refunding act to $489,937,806 on October 31 last, due account being taken of the reduction in quantity caused by the 5 per cent. fund required to be maintained at Washington for the redemption of the notes. The increase in this form of currency has thus been in the period stated $273,563,011 or nearly half the increase in the total volume of all kinds of money that has taken place, and inasmuch as about $200,000,000 in round numbers of the 4 and 5 per cent. bonds of 1907 and 1908 still remain unfunded and will undoubtedly be funded inside of two years at the latest, an increase in the quantity of outstanding bank notes of nearly $475,000,000 may be predicated covering a period of seven years' operation of the bond refunding law.

Panama Canal Bonds to Come.

Nor does this comprise all of the enlargement of bank note circulation that is possible in this time. At the forthcoming session of Congress an act will probably be passed authorizing an issue of perhaps $150,000,000 of Government 2 per cent. bonds for the Panama Canal construction, and in order to make these bonds readily salable it is purposed, without dissent so far as can be ascertained, to make them also available for bank note circulation. If this is done an increase in the circulating medium in the shape of notes issued by the banks of in the neighborhood of $625,000,000 in the seven years' period referred to will at least be possible.

The effect of this inflation of paper currency upon prices of stocks and commodities is, so far as the past is concerned, now readily observable, and there is no logical reason to suppose that the further course and influence of the process will be any different from that which it was in the fore part of its career. An elevation of values from such a cause alone would under ordinary circumstances, as will be generally conceded, contain elements of grave danger, but circumstances in this country in the last five years have been extraordinary. There has been in this time a huge actual increase in the substantial wealth of the country. The new bank note circulation, in other words, rests not upon wind but upon an intrinsic enlargement of wealth per capita, caused by the energies and industries of a vastly increased population and especially by the prosperity of the agricultural sections of the country, owing to the coincidence of the remarkably favoring factors of large crops sold at high prices. Secondly, the increased production of gold in the country and throughout the world lends a stability to this greater volume of paper currency that it would not otherwise possess. Figures on this point have been made subjects of such common reference as not to need renewed quotation.

A matter deserving some thought, however, is whether in view of the increase, present and prospective, in the gold supply a further enlargement of the bank note circulation is at this time necessary, and this perhaps suggests that more consideration than has yet been given should be extended to the proposition to make the new issue of Panama Canal bonds available for use by the banks in the manner described. Assuming that the Panama Canal bond issue is of the size stated, a total volume of bank note circulation at the end of 1907 of $840,000,000 may thus be authorized, and it is to be remembered that the volume of bank notes thus created augments the obligations of the Government which must be maintained at par with gold. Should the 5 per cent. fund deposited in the Treasury for the redemption of bank notes be exhausted and a bank fail to replenish it the Government under the provision of the national bank act is still bound to redeem the notes of that bank and look for reimbursement, first to the bonds held as security, and if that resource proves insufficient then, as a preferred creditor, to the bank's assets. National bank notes are therefore in effect Government notes and must, like them, under the other provisions of the law, be redeemed in gold or in lawful money convertible into gold at will.

What the Bureau of Standards Has Accomplished.

The readers of *The Iron Age* will recall the space which some years ago we devoted to advocating the passage of a bill by Congress establishing a national bureau of standards. The act as finally passed by Congress and approved March 3, 1901, provided that the Office of Standard Weights and Measures of the Treasury Department should be thereafter known as the National Bureau of Standards. Through the aggressive policy of Dr. Samuel W. Stratton, who was selected as director by the President of the United States, an excellent site was secured and the two main buildings were nearly finished before the bureau was transferred to the Department of Commerce and Labor on July 1, 1903, by the act establishing that Department. Since then the director, with the support of the Secretary of the new Department, has been able to finish the two buildings, equip the various laboratories with apparatus and gather about him a scientific staff of some 35 members, all of whom are working enthusiastically and in harmony to attain the objects for which the bureau was established.

Official Visitation and Inspection.

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It is the desire of the bureau to co-operate with manufacturers, scientists and others in briging about more satisfactory conditions relative to weights and measures in the broader meaning of these terms and to place at the disposal of those interested such information relative to these subjects as may be in its possession. It is also its desire to aid in the solution of specific scientific problems arising in technical or scientific work coming within the scope of the bureau.

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Currency Expansion and Commodity Values.

A factor that bears in an important way upon the course of prices for iron and steel and the general commodity market as well is the increase in currency in the United States, both gold and in national bank notes. The following discussion of the subject in the New York *Sun* of November 5 raises a number of points well worthy of consideration:

The Bond Refunding Act Cheapened Money.

The announcement last week that the national bank note circulation throughout the country had increased during the month of October $8,249,280 and in the year thus far $67,126,749 again draws attention to the great part played now and during the last few years by the operations of the Government bond refunding act passed in March, 1900. At the time this bill became a law popular scrutiny was far more occupied with those provisions of it relating to the establishment and security of the gold standard than with those other sections which made possible a great increase in the circulating medium, and speculators and banking interests as well only grasped with extreme slowness the true meaning of the measure. It is now apparent to every one, however, that to the bond refunding act is due almost as much as to the increased production of gold in the country the general cheapness of money that has prevailed here in the last five years, and no better time can be taken than the present for a review of what has been accomplished by the act and for a forecast of the results that may reasonably be expected from it in the future. The act itself in its provision bearing upon bank note circulation provided that all the bonds of the United States bearing 3, 4 and 5 per cent. per annum and maturing in 1904, 1907 and 1908 might be refunded into bonds not maturing until 1930 and drawing interest at the rate of only 2 per cent. The Secretary of the Treasury was authorized to exchange the outstanding bonds for the new ones upon terms that invited the transaction on the part of bondholders, and following the passage of the act the conversion of the bonds proceeded in a rapid way. As the old outstanding bonds sold at high premiums they were available only in a narrow way for purposes of bank note circulation, since the national banks buying the bonds for such use would have to lose a large sum in interest on the premiums paid; but the premium on the new 2 per cent. bonds was of course relatively slight and the banks could use these for purposes of circulation very advantageously.

Other Influences Which Aided Currency Expansion.

Aside from all this the refunding act raised the limit at which the Government bonds could be used for bank note circulation to a price of par, or 100, instead of 90, the old figure, and reduced from 2 to ½ per cent. the Government tax on circulation. Further, the new law amended the national bank act so as to allow of the establishment of national banks with a much smaller capital than had previously been possible. But this was not all. The Secretary of the Treasury some time after the passage of the refunding act made such a reconstruction of the Federal statutes governing the deposit of public moneys in the national banks as to permit the substitution of other guarantees than those of Government bonds for the security of the sums of money thus deposited. This allowed the banks to withdraw from the Treasury of the United States the Government bonds previously deposited by them for the purpose named and to use these bonds for the creation of further bank note circulation, and indeed the admitted policy of the Treasury Department during the period of Mr. Shaw's incumbency has been to enlarge bank note circulation by every possible means.

Natural forces, too, have worked along these same lines, notably by reason of the appearance of a deficit in the Government's revenues. For more than a year back the Government has been paying out more money than it has received, and it has thus been compelled to make requisition upon the Government moneys held by national banks. As it has drawn upon these deposits the Government bonds held against the deposits have been compulsorily released and these have gone into new bank note circulation along with the others. The joint effect of all these forces has been to stimulate bank note circulation as in a forcing house, and bank currency has, in fact, risen from $216,374,795 just before the passage of the bond refunding act to $489,937,806 on October 31 last, due account being taken of the reduction in quantity caused by the 5 per cent. fund required to be maintained at Washington for the redemption of the notes. The increase in this form of currency has thus been in the period stated $273,563,011 or nearly half the increase in the total volume of all kinds of money that has taken place, and inasmuch as about $200,000,000 in round numbers of the 4 and 5 per cent. bonds of 1907 and 1908 still remain unfunded and will undoubtedly be funded inside of two years at the latest, an increase in the quantity of outstanding bank notes of nearly $475,000,000 may be predicated covering a period of seven years' operation of the bond refunding law.

Panama Canal Bonds to Come.

Nor does this comprise all of the enlargement of bank note circulation that is possible in this time. At the forthcoming session of Congress an act will probably be passed authorizing an issue of perhaps $150,000,000 of Government 2 per cent. bonds for the Panama Canal construction, and in order to make these bonds readily salable it is purposed, without dissent so far as can be ascertained, to make them also available for bank note circulation. If this is done an increase in the circulating medium in the shape of notes issued by the banks of in the neighborhood of $625,000,000 in the seven years' period referred to will at least be possible.

The effect of this inflation of paper currency upon prices of stocks and commodities is, so far as the past is concerned, now readily observable, and there is no logical reason to suppose that the further course and influence of the process will be any different from that which it was in the fore part of its career. An elevation of values from such a cause alone would under ordinary circumstances, as will be generally conceded, contain elements of grave danger, but circumstances in this country in the last five years have been extraordinary. There has been in this time a huge actual increase in the substantial wealth of the country. The new bank note circulation, in other words, rests not upon wind but upon an intrinsic enlargement of wealth per capita, caused by the energies and industries of a vastly increased population and especially by the prosperity of the agricultural sections of the country, owing to the coincidence of the remarkably favoring factors of large crops sold at high prices. Secondly, the increased production of gold in the country and throughout the world lends a stability to this greater volume of paper currency that it would not otherwise possess. Figures on this point have been made subjects of such common reference as not to need renewed quotation.

A matter deserving some thought, however, is whether in view of the increase, present and prospective, in the gold supply a further enlargement of the bank note circulation is at this time necessary, and this perhaps suggests that more consideration than has yet been given should be extended to the proposition to make the new issue of Panama Canal bonds available for use by the banks in the manner described. Assuming that the Panama Canal bond issue is of the size stated, a total volume of bank note circulation at the end of 1907 of $840,000,000 may thus be authorized, and it is to be remembered that the volume of bank notes thus created augments the obligations of the Government which must be maintained at par with gold. Should the 5 per cent. fund deposited in the Treasury for the redemption of bank notes be exhausted and a bank fail to replenish it the Government under the provision of the national bank act is still bound to redeem the notes of that bank and look for reimbursement, first to the bonds held as security, and if that resource proves insufficient then, as a preferred creditor, to the bank's assets. National bank notes are therefore in effect Government notes and must, like them, under the other provisions of the law, be redeemed in gold or in lawful money convertible into gold at will.

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Recent Customs Decisions.

Short Steel Rails.

The Board of United States General Appraisers has been called upon to decide whether steel rails broken up into short lengths are dutiable at 45 per cent. as claimed by the Collector of Customs at Worcester, Mass., or dutiable at only $4 per ton as maintained by the importers. While the name of the importer was withheld, it developed that the merchandise was exported by Sesenwein Brothers, Montreal. The articles are broken up into lengths varying from 3 to 5 feet, although some of the rails are much longer. Steel rails are specially provided for in the tariff law, but when the collector's attention was directed to the Canadian importation he did not consider that the entries came within the meaning of the tariff provision for rails, but deemed the pieces dutiable as "manufactures of metal." This classification was objected to by the consignees, but in order to obtain possession of the merchandise the duties demanded were paid under protest. In the petition to the Board of Appraisers it is set forth that the articles are "rail ends, fit only for remanufacture, as scrap steel."

Automobiles.

In a decision written by Eugene G. Hay the Board of United States General Appraisers served notice November 10 that Americans returning from abroad with automobiles purchased on the other side which have not been in use at least a year will be required to pay duty at the rate of 45 per cent. under the provision in the tariff for manufactures of metal. The specific case decided by the board was that of John Magee of New York. While abroad Mr. Magee purchased a 24 horse-power Panhard which he used for touring purposes. When he reached New York he claimed exemption from duty for the automobile on the ground that it was a "household effect," or at least a "personal effect" of a returning resident of the United States. The importer failed to controvert the evidence adduced before the customs court by Collector Stranahan, and the board thereupon overruled the protest and affirmed the action of the collector in levying duty. It is understood that Mr. Magee's case is representative of the experience of a number of Americans who bought machines abroad and entered them at New York without familiarizing themselves in advance with the United States customs laws.

Steel Pens.

It was decided by the Board of United States General Appraisers November 9 that steel pens made so that the barrel and pen point are in one piece are dutiable at composite rates. The merchandise was imported by Thomas Irwin & Sons, New York, some of the pens being mounted on wooden holders and carded and some without the holders being packed in boxes. Collector Stranahan assessed duty at the rate of 45 per cent. as manufactures of metal and wood, metal chief value, on the pens with the wooden holders, while the pens without holders were assessed as manufactures of metal. The importers claimed that the metal articles are dutiable at 12 cents per gross as "pens, metallic," and the wooden holders at 25 per cent. as manufactures of wood. General Appraiser Fischer, who writes the decision for the tribunal, says that the contention of the importers is well taken and should be sustained. The collector is ordered to reliquidate the entries in accordance with the reduced duty found by the board.

Steel Grinding Plates.

The Board of General Appraisers has overruled a protest filed by Thomas Prosser & Son, New York, regarding the classification of so called steel grinding plates. Duty was assessed at the rate of 45 per cent. under the provision in the tariff law for manufactures of metal. The importers set up the claim that the articles were properly dutiable either as steel castings at 1 3-10 cents per pound or as forgings at 35 per cent. Counsel for the importers admitted on the record that the articles had been made by the casting process; that after being cast they were to some extent machined; that the holes drilled in the plates were drilled by machinery, and that the machining process was sufficiently elaborate and complete to make the articles ready, in their condition as imported, for immediate use for the purpose for which they are intended. In his decision written for the Board General Appraiser Fischer says in part: "We are of opinion on these admitted facts that both claims in the protest are untenable, for the goods clearly are not forgings and they have been advanced from the condition of castings by reason of the work and labor bestowed on them after the casting process was finished."

The Fulton Fuel Economizer.

The automatic stoking furnace shown in the illustrations combines a mechanical stoker of new design with a furnace for which is claimed very high efficiency resulting from the even distribution of coal upon the grates and the combustion of gases usually wasted. A view of a set of grates before installation is given in Fig. 1.

The stoker itself is placed at the front of the furnace, as shown in Fig. 2, and consists of a hopper from which the coal is automatically fed to the grate surface by means of what is termed a crusher and feeder. This consists of a roll, A, which is riffled or fluted and also studded with pins 1 inch in diameter and 3 inches long, set in

Fig. 1.—The Grates of the Fulton Furnace.

zigzag lines among the riffles. The riffled plate B assists in the crushing. The roll is given an oscillating motion, the pins or fingers agitating the coal at the bottom of the hopper, causing it to feed freely. An adjustable slide regulates the opening from the hopper to the crusher, the usual opening being about 2½ inches. The length of this opening in the experimental installation at the power station of the Newton Street Railway, Newton, Mass., is 5 feet.

In this installation the device is used with a 125 horse-power Babcock & Wilcox boiler. The grate consists of a series of alternately stationary and movable bars, beginning at the top with a movable one. The movable grates are fastened to four supporting beams, each pivoted at the bottom at C and working on an eccentric at D. As this eccentric shaft revolves very slowly the movable grates are given a motion which is slightly upward, then forward and then downward on the return. The coal feeds to the upper grate, then drops to the stationary grate directly below and is pushed off to the next movable grate with the motion of the eccentric. The fuel constantly advances downward until it has reached a condition of ash when it arrives at the dumping grate E.

The power for operating the grates and the crusher is supplied by a small oscillating engine placed near the end of the crusher. On the engine shaft is a rawhide pinion which meshes a large gear carrying an eccentric connected by an arm with the crusher roll, imparting to it

its oscillating motion. The eccentric also operates a ratchet on the eccentric shaft D. A balanced dumping grate is easily operated by a poker inserted in a hole in the arm F.

When it is desired to bank the fire the hopper is allowed to empty and the movable grates to continue to act until the coal is near the bottom of the grates, where it will retain its fire for the usual length of time. A new fire may be quickly made by taking a few shovelfuls of live coals from another boiler, or it may be made with wood. Doors are not suspended in front. From the floor level there is an incline inward to the ash pit, and the ashes may be easily pulled out.

It is stated by the engineer in charge of the Newton Street Railway Power Station, where the device has had several months' test, that there is no clogging of the coal in the hopper and no attention is given it, and that no slicing or other handling of the fire is necessary.

The other feature of the economizer is the furnace itself. As will be seen from Fig. 2 air is admitted to the furnace through pipes J, of which there are 12, each 1 inch in diameter. The air is heated before it reaches the combustion chamber, because of the great heat of the fire brick in which the pipes are laid. No artificial draft is necessary, the vacuum created in the furnace supplying the necessary suction in proportion to the rate of combustion.

The furnace operates on the principle that instantaneously with the admission of the coal into the chamber at the top of the grates the first arrangement of the arches which forms a reverberatory furnace at K expels the smoke liberated from the coal, and as it rises and passes along the ceiling of the reverberatory furnace it becomes heated to a very high temperature before meeting the suspended check wall L, where it is diverted downward and is brought into close contact with that part of the fire bed where the fixed carbons are burning, giving off an intense heat at the point where the heated atmospheric air is admitted. Here the combined gases are ignited, entirely distinct from and separated from the fire bed combustion, it is claimed. By this means the smoke is consumed. The amount of ash is very slight.

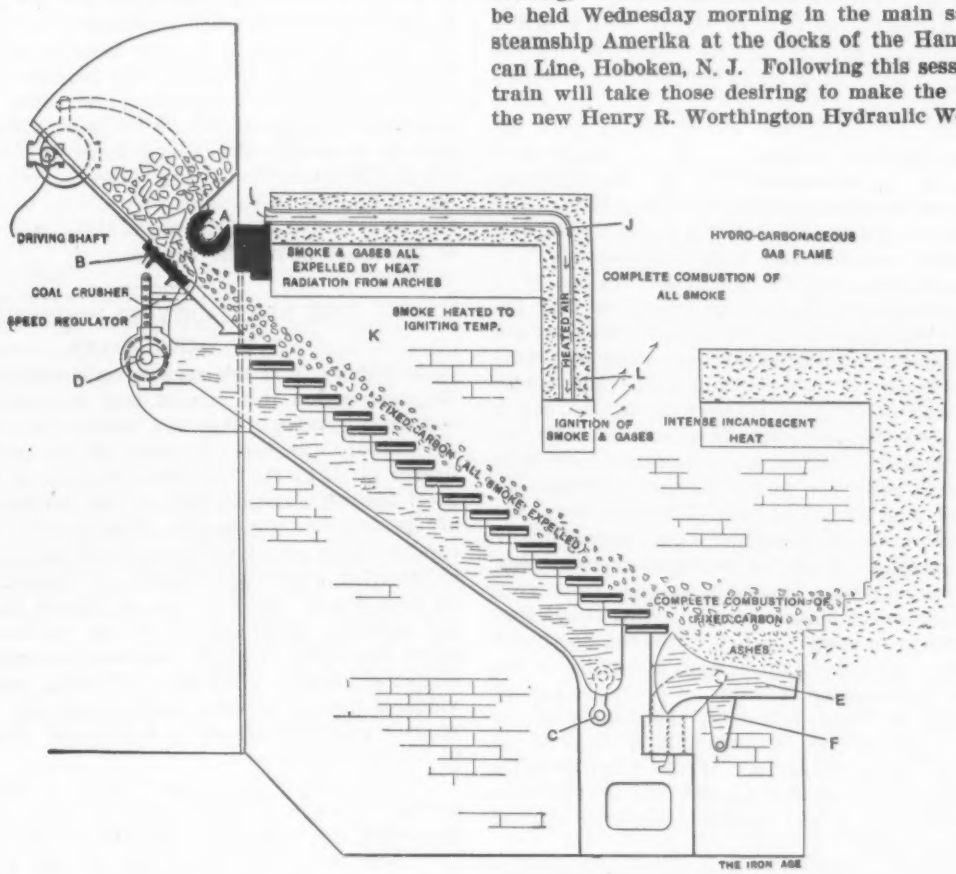


Fig. 2.—Section of the Fulton Fuel Economizer and Stoker.

The stoker and furnace are controlled by the Fulton Fuel Economizer Company, Oliver Building, Boston, Mass., which has begun to put them upon the market. A furnace of similar principle has been applied by the same company to a locomotive.

Meeting of the American Society of Mechanical Engineers.

The fifty-second meeting of the American Society of Mechanical Engineers will be held in New York City the first week in December. The headquarters, instead of being at the society house, 12 West Thirty-first street, as in previous years, will be at the Edison Building, 44 West Twenty-seventh street. The two upper floors of the latter building will be used and the opening session, at which President John R. Freeman will present the annual address, will take place there on Tuesday evening, December 5. The second or business session will be held Wednesday morning in the main saloon of the steamship Amerika at the docks of the Hamburg-American Line, Hoboken, N. J. Following this session a special train will take those desiring to make the excursion to the new Henry R. Worthington Hydraulic Works at Harrison, N. J. Wednesday evening an illustrated lecture will be given at the headquarters by Prof. R. W. Wood of Johns Hopkins University on "Photography of Invisible Phenomena." The third session will be held at the same place Thursday morning, and besides the presentation of professional papers there will be a discussion on the subject of bearings. Thursday afternoon there will be a reception at the New York School of Automobile Engineers, 146 West Fifty-sixth street. The usual reception at Sherry's will occur on Thursday evening, and the closing session at the headquarters on Friday morning will be devoted to the presentation of professional papers.

More Lake Superior Ore for Colorado.—In addition to nearly 100,000 tons of Mesaba range ore bought by the Colorado Fuel & Iron Company in June of this year for shipment to Pueblo through the remainder of the year it is understood that negotiations have been on recently for Lake ores for shipment to Pueblo after January 1. Two Cleveland firms are mentioned as probable sellers, but the amount to be taken has not been decided. These ores are wanted to fill out the Colorado company's supply pending the fuller development of its own mines.

Dry Air for Blast Furnaces.

Papers Presented at the Liege Mining and Metallurgical Congress.

In the report in *The Iron Age* of July 27, 1905, pages 214-216, of the proceedings of the Congress of Mining and Metallurgy, held in connection with the International Exhibition at Liége, Belgium, a synopsis was given of the papers read and the accompanying discussions. Several papers among those read by title have not been published. From advance proofs of these furnished through the courtesy of the secretary of the Metallurgical Section, Constant Renson, technical manager of the Angleur Iron & Steel Works, near Liége, the following abstracts have been prepared:

EFFECT OF DRY BLAST ON FURNACE WORKING.

BY A. LODIN, PROFESSOR OF METALLURGY AT THE PARIS SCHOOL OF MINES.

The increase of 25 per cent. in output, with a saving of 20 per cent. in coke consumption through drying the blast, announced by Mr. Gayley at the New York meeting of the Iron and Steel Institute last year, attracted much attention from metallurgists. These results were obtained at the Isabella furnaces, near Pittsburgh, with a plant put up in accordance with Mr. Gayley's last patent. Notwithstanding several obscure points, which were not cleared up in Mr. Gayley's paper at the last May meeting of the Iron and Steel Institute, his communication possesses great interest, owing to the practical results obtained. The author considers that the only reactions susceptible of being influenced by humidity in the blast were reduction of the silicon and manganese, with fusion of the pig and slag. The water vapor introduced into the space above the tuyeres reacts immediately upon the coke, while forming carbonic acid and absorbing 3220 calories per kilogramme, or 5976 British thermal units per pound of coke burned. As the proportion introduced by the blast increases the mean temperature of the space above the tuyeres diminishes; the reduction of the silicon first becomes less active and the pig has a tendency to pass from gray to white. Then, on the temperature becoming still lower, the charges cease to melt above the tuyeres, so that a scaffold forms. All absorption of heat occurring in the region of the tuyeres, like that due to decomposition of the humidity in the blast, will delay the descent of the charges and diminish the production in a ratio corresponding with the variation, not of the total quantity of heat disengaged above the tuyeres, but of the combustion temperature of the carbon when the normal working is established.

If it be desired to maintain the output, notwithstanding this disturbing influence, a quantity of heat equal to that abstracted must be returned to the zone of the tuyeres. Formerly this could only be effected by burning an additional volume of carbon, but heating the blast has afforded a far more effective method of compensation, for it gives an exact counterpart of the action exerted by the water vapor. The additional heat introduced by the blast is utilized entirely by the fusion, and its relative effect is so much the more considerable as the combustion temperature of the carbon above the tuyeres was originally lower, or as the working of the furnace must be kept hotter.

Drying of Blast Not the Main Cause of Saving.

It is impossible under the conditions described by Mr. Gayley to regard the drying of the blast as the main cause of the saving effected. It must contribute to reduce the coke consumption, but if the part played by the absorption of heat corresponding with the decomposition of the water in the blast becomes reduced to almost nothing (as in one of the cases considered) another cause must be sought for difference in the fuel consumption. The principal cause must be an influence acting with constant intensity during the whole experimental period.

The diminution of one-tenth the weight of blast passing through the tuyeres during a given time is of a nature to exert great influence on the working of the furnace. If the previous working were too rapid it might be improved by a reduction of the blast, which would prevent the ore from attaining the space above the tuyeres in a state of incomplete reduction, so as to become scarified there, while forming silicates that can only be reduced by the action of solid carbon, with the formation of carbonic oxide and considerable absorption of heat. If the descent of the charges should slacken the reduction by the gaseous current would be effected more completely, the coke consumption would diminish and the composition of the furnace gases would be modified to advantage by increase in the ratio of CO_2 to CO.

Effect of Reduction in Quantity of Blast.

It may be asked if the relative acceleration of working at the Isabella furnaces was not obtained at the expense of fuel economy, and if the improvement attributed by Mr. Gayley to drying the blast is not chiefly due, during the winter period at any rate, to reduction in the quantity of blast introduced in a given length of time. For clearing up this question only one of the factors capable of modifying the furnace working must be varied at a time; and the experiments in this direction should by preference be made on blast furnaces in normal working. Everything leads to the belief that drying the blast would only exert a subsidiary advantage if applied to furnaces blown with a very hot blast and so arranged that the ore arrives in a reduced state at the space above the tuyeres.

THE BLAST-DRYING PROBLEM.

BY VICTOR DEFAYS.

It follows from the various communications made to the congress on this subject that (1) drying the blast undoubtedly reduces the coke consumption and increases the output; (2) there is contradiction in Mr. Gayley's figures given at the New York meeting of the Iron and Steel Institute, and not only so but (3) certain elements of appreciation are so far wanting that the practical results cannot be verified by calculation; (4) M. Divary's information (from experiments at Creusot, summarized on page 404 of *The Iron Age* of August 17, 1905) as to the influence of humid air on the working of his furnaces has great interest, because concording with Mr. Gayley's results, while also affording metallurgists a valuable method of investigation, and (5) the proposed remedy will probably exert a different effect according to local circumstances.

Considering that the question is of far greater importance than is generally supposed and thoroughly appreciating the adage that for working well a blast furnace must have the feet warm and the head cool, the author concludes: 1. A trial of the Gayley system in any given blast furnace can only have value for furnaces under the same conditions. 2. It is advisable to select 20 furnaces working under the most different conditions possible and on which the Creusot observations should be made for a given period, which would permit of determining far more certainly and with less expense than by a simple trial the chances of advantage which metallurgists may derive from drying the blast.

A furnace manager has no greater enemy than the steam introduced at the base of his furnace. If a tuyere should leak and not at once be attended to the bottom of the furnace will cool down and fire reach the mouth. What occurs on a large scale in such an accident is always going on to a certain extent, owing to the water vapor with which the blast is charged. In fact, the water acts as a vehicle of heat units, which it conveys from the bottom to the top of the furnace. As it appears well established that the constant increase in the temperature of the blast and the hight of the furnace is chiefly for counteracting the water vapor in the air it may be asked whether on almost entirely suppressing the cause there is not reason to return, to some extent at least, to former practice? If the experiment be successful it would naturally follow that very high temperatures of blast must be abandoned and the profile of the furnace must be remodeled, especially its hight reduced.

Lower Blast Temperature.

As regards reducing the blast temperature, the problem of coke economy assumes a very different aspect now that waste gases are utilized. The saving may take the form of one in physical heat—that of the gas taken off from the mouth, a radical loss, should be especially avoided, and all the more as it complicates the purification of the gas—or there may be an economy in the quantity of gas and its value in chemical heat (improving in the ratio of CO_2 to CO). If, thanks to drying the blast, less gas be required to heat it more will be left for other purposes. And this diminution in heating the blast will have another consequence, viz., that the stoves will be less costly, which will go far to pay the expense of the drying plant. Perhaps a return may even be made to types of stove that were only abandoned because they did not raise the blast to a sufficient temperature.

As to reducing the furnace hight, its consequences, though less important, would be appreciable, and at all events the old furnaces of moderate hight now working would be in a better position to compete with the modern giants.

Thus it will be seen that drying the blast may be attended with important consequences and may reopen many questions regarded as finally settled connected with the construction and management of blast furnaces. The author's proposition to make systematic observations on a large number of furnaces working under the most various conditions as regards the influence of the hygrometric degree in the blast would permit of turning Mr. Gayley's invention to the greatest possible account. In a short time the amount of advantage that may be derived from drying the blast, as regards coke saving, increased output and regularity of working would be definitely determined, while accurate information would be afforded as to the type of furnace which, in each special case, is best suited for turning these advantages to the greatest possible account.

UTILIZATION OF BLAST FURNACE GAS.

BY VICTOR DEFAYS.

When it was found possible to utilize blast furnace gas for economically producing motive power metallurgists regarded this innovation as the dawn of a profound transformation. The first trials seemed to show that the problem was solved almost as soon as stated, and small scale experiments led to applications on a large scale. Difficulties encountered in freeing the gas from fine dust brought a slight check, but soon inventors found means of effectually eliminating dust from the gas, which then became suitable for directly affording motive power.

In achieving this success, however, which greatly improved the value of the gas as regards its utilization in engines, the thermic qualities of the gas as a heating agent were also increased, so that the hot air stoves and boilers fired with furnace gas attained a far higher thermic efficiency that before. This increased value of the gas for heating is due to two circumstances: 1. Elimination of the greater portion of the sublimate which adheres to the surfaces of the stoves and boilers, hindering the transmission of heat by low conducting power. 2. The presence of a quantity, always considerable, of water vapor in the gas, which diminishes its heating power to a large extent.

Too Much Emphasis on Gas for Motors.

Now that iron masters possess a gas very much improved in all respects, especially when freed of its humidity, there is reason to ask whether the utilization of this gas, or at any rate some of it, for firing metallurgical furnaces may not in many cases be more economical than its exclusive employment for generating motive power. The author considers himself warranted in replying affirmatively, although he does not pretend to solve the problem, which presents itself under many different aspects, according to the circumstances of each case. And the following are his arguments in favor of this view:

1. Purification of the gas need not be carried to such an extent for heating as for motive power.

2. There is a better coefficient of utilization in the former than in the latter case, because in most iron and steel works the demand upon motive power is variable, while there are times when this demand greatly exceeds the mean; for instance, when several large motors have to start simultaneously. The utilization coefficient of gas for motive power in iron and steel works may be put, according to circumstances, at from 40 to 70 per cent., if the blast furnaces themselves, with their blowing engines and other accessories, be left out of the question. But the question is very different with the firing of furnaces which nearly all work continuously. Open hearth furnaces, for instance, consume day and night a constant quantity of gas, so that the utilization coefficient easily reaches 80 or 90 per cent.

3. As regards the solid fuel burned, nearly all works comprising blast furnaces, steel works and rolling mills must consume, in addition to the furnace gas, a certain amount of coal, either for the production of motive power or for firing the furnaces. Blast furnace gas for raising steam replaces coal of inferior quality, but when it is used for firing furnaces it replaces gas coal of higher intrinsic value, the gain in favor of the latter utilization being put by the author at 12½ per cent.

Cost of Gas and Steam Power Plants.

As regards first cost, it may be considered that the power plant, whether gas or steam, costs about the same, all things considered; but the balance is in favor of utilizing blast furnace gas for firing the furnaces, combined with the production of motive power by steam, if it be taken into consideration that the plant for purifying the gas will cost less, and that, except a few simple gas producers in reserve, it will be unnecessary to erect these producers for the open hearth reheaters and other furnaces.

To sum up: In many cases there will be appreciable advantage in using the waste gases for firing furnaces instead of producing motive power in engines, as is now the general tendency. The slighter purifying of the gas, the better utilization coefficient, the saving in the price of coal used to supplement the gas and, lastly, the lower first cost are all in favor of this view. It may also be advanced that steam engines at an electric generating station are more supple and trustworthy, with lower cost for up-keep, as compared with gas engines.

Producer Gas and Furnace Gas.

Another paper enters into a comparision of producer gas and blast furnace gas for firing metallurgical furnaces, and considers that if it be borne in mind that the quantity of carbonic oxide is greater in the latter than in the former gas, and that the former contains a great deal of hydrogen, the calorific value of which at high temperatures is *nil*, or nearly so, and that there is about the same quantity of nitrogen in both, they may be regarded as practically equivalent for firing metallurgical furnaces. This will not hold good for gas engines because, as their temperature is far lower, hydrogen is a good fuel in their case. It must be added in favor of blast furnace gas that it may be so far freed from water vapor as to become even dryer than producer gas. In any case, if blast furnace gas be slightly inferior to producer gas for firing furnaces the slight difference may be very easily made good by the use of intensive burners, in which a thin flat jet of gas is enveloped by two similar jets of air, or and by a slight enrichment of the gas, which can be effected very cheaply and simply.

As regard the point that has been raised of the radiation of blast furnace gas, the objection is unfounded that "furnaces heat chiefly by reverberation, which requires a flame of great radiation and consequently illumination, as is not the case with blast furnace gas, which contains scarcely any other fuel than carbonic oxide, giving a nonilluminating flame." Carbonic oxide has great radiation, because Helmholtz has shown that the nonilluminating flame of carbonic oxide has a radiating power superior to that of pure lighting gas as burned for illumination.

The author concludes that at works where the blast

furnaces are near steel works and rolling mills with gas furnaces it will be more economical to use the blast furnace gas for firing these latter and to raise steam for the motive power.

GAS OR ELECTRIC MOTOR FOR ROLL DRIVING.

BY CARL ILGNER.

The author classes roll trains in three categories, according to the manner in which the power for driving them is utilized: 1. Reversing mills. 2. Trains always running in the same direction, but at a speed varying from time to time in the ratio of 3 to 2, while the slowest speed corresponds with the greatest absorption of power. 3. Those in which both power and speed are constant. For the first of these classes the gas engine is inapplicable, notwithstanding the attempts made at various works to introduce a reversible coupling between the fly wheel and the roll train.

Electric Drives Successful.

Electric driving affords excellent means not only for easily and certainly regulating the speed, but also for transforming the variable power required by the roll train into one that is almost uniform, in which case there is no doubt of the success of electric driving. Several electric roll trains are under construction, and the preliminary trials hold out the hope of thorough success. If a three-high roll train, the speed of which varies periodically, be coupled with a gas engine the latter will furnish the greatest amount of power when the speed is lowest. But the products rolled at this slight speed only constitute a third of the whole output, while the remaining two-thirds will be rolled at the maximum speed of the gas engine, the efficiency of which will be very slight. It follows that the gas engine will give out a considerable portion of its power while consuming too much gas per horse-power hour. By employing electricity as an intermediary the variations of speed are transferred to it so that variation of the load on the motor is diminished. The consequence is that, notwithstanding loss in the electric transmission, and without regard to variation in the speed, gas engines that are no more powerful than those for driving the roll train directly may be erected at the generating station. It is perfectly evident that reversing mills and cogging trains absorb a widely varying amount of power. Electric driving and centralizing the generation of energy present excellent means for regulating motive power, on the one hand by increasing the rotary masses in motion, to which are added those of the fly wheels at the generating station, and on the other by distributing the shocks and the irregularities over the whole generating station. It is evident that the power thus required by the cogging rolls from the gas engines at the central station will be less than that which the rolls would absorb if each were driven directly by its own gas motor.

Possibilities of Centralizing Power.

As regards the third class—roll trains of constand speed, which are generally used for plates and small bars—variations of load are not considerable, and in their case electric driving does not afford any great advantage. If, however, it be required to drive roll trains of all three classes, there is no doubt that centralization of the power is preferable to the use of a gas engine for each separate roll train. And to the advantages already claimed for the electric driving of roll trains in classes 1 and 2 must be added those resulting from centralization of the power. The total power absorbed by all the roll trains at a given moment is undoubtedly far less than the sum of the maximum power required by each train.

Another advantage is that the motor of the generating station can receive all the care it requires, because one can be kept in reserve. If the gas engine be coupled directly with the roll train the stoppages required for overhauling will not be compatible with proper working of the train. The electromotor stands overloading better than does the gas engine, while more easily and at less expense it can be replaced by another of greater power. The provision of a reserve for meeting hitches at the blast furnaces or coke ovens is easier at a central station than for each motor. In the latter case all that can be done is to lay down gas producers more difficult to manage, owing to intermittent working. At the central station, on the contrary, a steam turbine with a bank of gas fired boilers constitutes a trustworthy reserve.

In short, a whole series of weighty considerations count in favor of centralization. If it be considered that at the central station much less power plant will need to be laid down, while larger motors may be employed, and if again the connections of each train and the long gas pipes be considered, the conclusion is warranted that the first cost will not be an obstacle to adopting the principle of central electric stations. The difficulties encountered in the progressive transformation of works must not be disregarded, but it appears undeniable that centralizing the motive power of rolling mills, with electric driving and the use of blast furnace or coke oven gas, gives promise of great economy as compared with present practice.

Royalties on Lake Ores.

Last week reference was made in the Duluth correspondence to some high royalties that had been paid for Mesaba ores. The figures given there must not be taken as ruling on new business, or as even indicative of rates. It would be bad for the iron trade if they were. No such royalties are likely for some time to come unless under very exceptional circumstances. These might be anything from a very high grade ore, desirable in physical and chemical character, to an intention to corner tonnage of a certain class. In the case of the 75-cent royalty now paid on the Mesaba by a Cleveland interest, structure and analysis of the ore and cheapness of mining were the considerations. In the case of another Mesaba property where even more was offered, the same considerations were important. This ore is under so slight a surface and lies in such position that mining is exceedingly cheap.

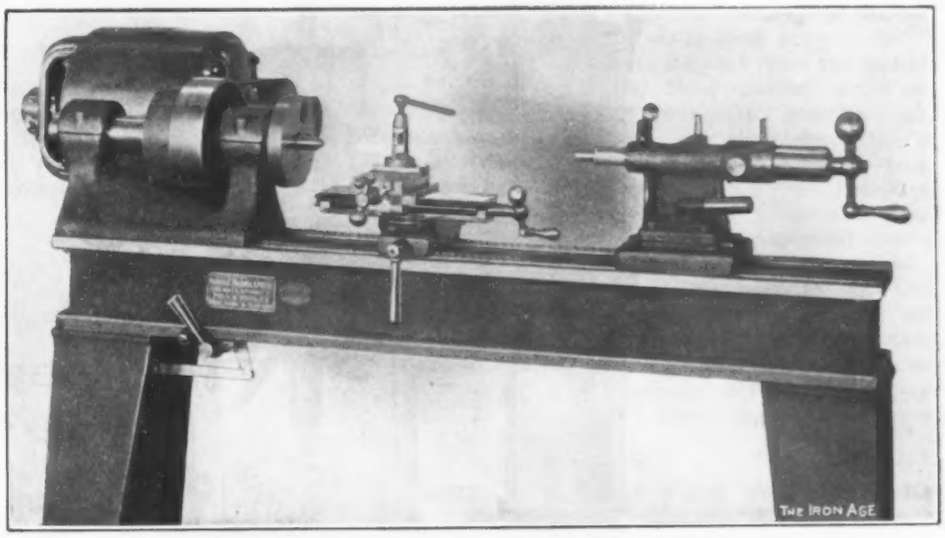
It makes little difference to the furnaceman whether he pays 25 cents royalty on an ore that will cost $1 to mine, or $1 for an ore he can win for 25 cents. The higher royalties usually bring not only more cheaply won but better ores, so that the mere matter of royalty rates frequently has slight bearing on the situation.

Thermit Pipe Welding.—The first application of the thermit process for pipe welding has recently been made in New York City for the Manhattan Refrigerating Company. The pipes were laid in the ground on Fourteenth street and are used as service return pipes in the delivery of liquid ammonia—180 pounds pressure—to various cold storage houses along the street. Twenty-nine 1¼-inch and 27 2-inch joints were welded. The pipe was welded on the ground to lengths varying from 40 to 100 feet, then placed in the ditch, cuts made for connections and the final welding done with the pipe in place. On the 2-inch line an expansion bend was placed, while on the 1¼-inch this was not thought necessary. Both lines were tested before being thrown into service and no failures showed themselves.

German Pig Iron Production.—Official records just published show that the total output of pig iron in Germany for the first nine months of 1905 was 7,963,596 metric tons, against 7,530,969 tons in the corresponding period of 1904, an increase of 432,627 tons. Recently the rate of increase has been growing, the September output being 953,780 tons, against 833,578 tons in September, 1904. The production to September 30 this year was distributed as follows: Basic iron, 5,170,527 tons; foundry iron, 1,379,000 tons; Bessemer iron, 315,614 tons; spiegeleisen, 501,005 tons; forge iron, 597,450 tons. The production of pig iron in the United States in the first nine months of 1905 was approximately 16,740,000 tons, or more than twice that in Germany in the same period.

The Blount Motor Driven Speed Lathe.

A neat arrangement of motor drive for the standard speed lathe built by the J. G. Blount Company, Everett, Mass., has recently been devised by that company. As is shown in the illustration, the motor is mounted on a bracket fastened to the back of the machine at the head. The motor is of the variable speed type made by the General Electric Company, having speeds ranging from 600 to 1800 revolutions. Upon the shaft of the motor is mounted a two-step cone pulley which belts to a two-step cone on the lathe spnidle, the pulleys being designed to give spindle speeds of from 240 to 1650 revolutions. The controller is placed on the left hand leg casting of the lathe underneath the head and is operated by the lever shown at the front. The head of the machine is provided with self oiling bronze bearings and may be reversed upon the bed, so that the face plate overhangs the end and gives a very large swing for pattern turning. The tail stock is the Blount patent screw and lever feed type and has previously been described in *The Iron Age*.



The Blount Speed Lathe with General Electric Motor.

Shipbuilding Activity in Scotland.

GLASGOW, November 3, 1905.—The extraordinary vitality in the Scotch steel trade is still generally attributed to the large demand for shipbuilding material. But it would indeed be difficult to mention any particular item in the steel manufacturer's schedule for which he does not find as many claims as he can meet, although not all in equal degree. Shipbuilding material is very dear to-day compared with the prices which have prevailed for some years. At present the prices here are £6 17s. 6d. per ton for steel ship plates, £7 7s. 6d. per ton for marine boiler plates, £6 10s. for steel angles and £7 10s. for steel bars, all less the ordinary 5 per cent. discount. High as are these quotations makers will not look at them for early delivery because they are already so filled up with orders, and one shipbuilder who wanted an extra supply of plates has had to pay £7 5s. per ton for them. Then, as to iron, our manufacturers have again advanced their prices for what is here called malleable iron—viz., rolled iron, such as bars, 10 shillings per ton—but they also are full up with orders. This week sheet makers have announced an advance in sheets of 5 shillings per ton.

On such figures of costs shipbuilders would be losing money enormously on current contracts for ships, but they are pretty well covered for all they will want for some months and only have to pay current rates for an occasional odd lot. These rates will have to be paid, however, for any additional contracts, and their influence upon shipbuilding costs has therefore served to check the flow of orders for new ships. It is true that quite a number of new contracts have been recently reported, but although only recently reported the negotiations were really concluded before the latest advances in material.

As it is, our shipbuilders are exceedingly well booked, some of them up to the middle of next year, some for the whole of next year and some even into 1907. How busy they have been in the present year so far may be judged from the fact that the launches from Scotch yards in October numbered 42 vessels, aggregating 64,200 tons, and that this makes the total output for the ten months ending October 457,500 tons in 287 vessels. So large an output in the first ten months of the year has never before been reached.

But large as the output has been, the new contracts booked have been still larger, notwithstanding the dearth of business in the summer months. The October contracts are estimated at 100,000 tons, which is less than in September, but a big figure in view of the advanced prices. At the beginning of the year there were 500,000 tons of work in hand in the Scotch shipyards; the launches since then have been 457,500 tons and the known new contracts booked aggregate about 520,000 tons, so that the work now on hand and to be faced during the winter and spring is about 62,000 tons more than when the year opened. This is a moderate computation, for it should be noted that shipbuilders as a rule do not report all the contracts they book, and the total on hand may be nearer 600,000 tons than 500,000 tons.

The pig iron warrant market generally has flattened under the uneasy feeling caused by the unrest in Russia, and hematite warrants at 70 shillings to 70 shillings 9 pence, as they are to-day, are not so high as they have been. Middlesbrough hematite is 72 shillings and Scotch hematite 75 shillings per ton, in each case delivered to steel works. These prices represent broadly an advance of about 16 shillings per ton on steel making iron since summer. In the same period Spanish hematite ore has advanced 4 shillings per ton, which is equal to 8 shillings per ton of pig iron produced.

At the end of October there were 703,269 tons of pig iron in all the public stores of the United Kingdom, as against 218,153 tons December 31, 1904, and 122,663 tons December 31, 1903. Of the quantity at latest date there were in the Glasgow stores 16,377 tons of Scotch G. M. B. and 7,000 tons other standard makes; in the Middlesbrough stores, 577,846 tons of Cleveland No. 3 foundry, 60,258 tons of standard iron and 4396 tons of hematite and other iron; in the West Coast stores, 37,400 tons of hematite.

There was a slight decrease in the quantity of Scotch G. M. B. in stores last month. As a rule there are no transactions nowadays in Scotch warrants, and the whole stock is understood to be held by one patient dealer, who is quite content to wait for an indefinite time until the rise comes that he believes in. But there has been one transaction in Scotch warrants this week, a very small

lot, at 57 shillings 3½ pence cash, which is certainly cheap as compared with Cleveland at 52 shillings 9 pence, the normal difference being about 8 shillings per ton. But the point is that the wages of blast furnacemen in Scotland are based upon the average selling prices of Scotch warrants. There has been no transaction in these warrants for months and the last price was, I believe, about 49 shillings. The interesting question now raised is whether the one little transaction at 57 shillings 3½ pence this week will necessitate an advance in furnace men's wages in proportion? It does seem odd that blast furnacemen should still have their wages regulated by the ups and downs of Scotch warrants; for Scotch warrants represent G. M. B. iron, of which very little indeed is made nowadays, most of the furnaces being either on hematite or special brands which are not affected—or, at all events, not to any great extent—by the ups and down of ordinary iron. There are, however, no wage questions on the carpet here just now, both pattern makers and machinists being all now peacefully at work under new agreements. B. T.

P. S.—Just as I am closing I hear that the Scotch smelters have agreed to give the blast furnace men an advance of 10 per cent. in their wages.

The Ontario Power Company Begins Delivery of Current.—The first electric current from the completed plant of the Ontario Power Company at Niagara Falls, Ontario, was transmitted across the Niagara Gorge November 1 to the transmission line of the Niagara, Lockport & Ontario Power Company, and 12,000 volts were sent coursing over the wires for delivery at the plant of the Lockport Gas & Electric Light Company. The distributing company (the Niagara, Lockport & Ontario Company) is rushing the completion of its transmission lines to Rochester and Syracuse, at which points it expects to make deliveries of power by January 1 and March 1, respectively.

The New Bickford Three-Foot Radial Drill.

The latest product of the Bickford Drill & Tool Company, Cincinnati, Ohio, is the 3-foot radial drill shown in Fig. 1. Its capacity for drilling from the solid is rated at 2 inches for steel and 2½ inches for cast iron. Of new design throughout the tool contains many improvements over its predecessors, but its principal feature is a speed box which, without the back gears or a clutch of any kind, gives instantly, with a single lever, six changes of speed.

Fig. 2 shows a section of the box containing the speed change gears. The driving pulley, running at constant speed, is secured to the primary shaft C on which are mounted the fixed gear D and the sliding gear B. A tumbler plate A, swiveling on the shaft C, carries an intermediate gear E for transmitting power to any one of the fixed gears G, H, I, J or K on the shaft. An intermediate gear F transmits motion continuously from the fixed gear D to the loose gear M, which carries a pawl and runs on the hub of a ratchet keyed to the secondary shaft L. A device automatically engages the pawl or keeps it away from the ratchet. The slowest speed is obtained by sliding the tumbler plate A to the last notch at the right in the gear casing when the intermediate gear E occupies the space between gears K and M and the power is transmitted to shaft L through gears D, F and M. Moving the tumbler plate to the next notch brings intermediate gear E into engagement with gear K, which makes gear B the driver and causes the ratchet on shaft L to run away from the pawl in gear M. Shaft L is therefore always running, for the moment its speed drops below that of gear M the pawl in the gear acts automatically and keeps it turning at its minimum speed until gear B is again made the driver.

As the minimum peripheral speed of the smallest driven gear G is but 182 feet per minute less than the

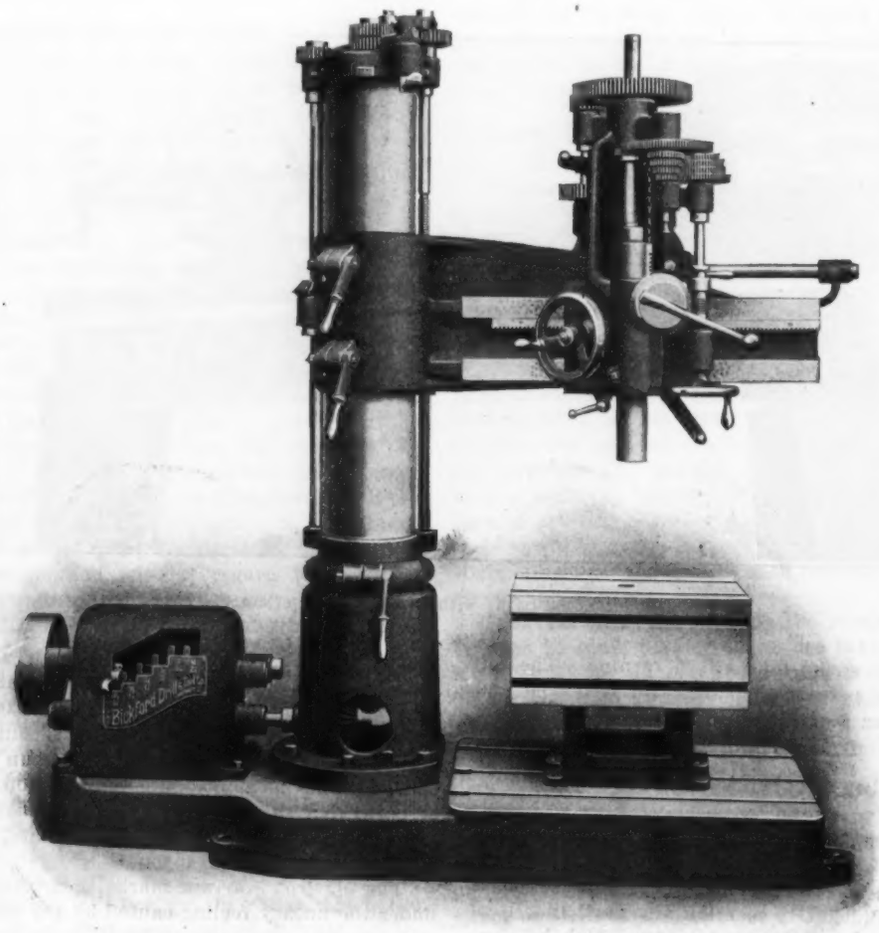


Fig. 1.—The Bickford 3-Foot Radial Drill with Gear Drive.

peripheral speed of driving gear B, the shock which usually accompanies engaging gears broadside is reduced to a minimum, such shock as there is being absorbed by the belt. Another good feature of this drive is the belt speed attainable at low gear speeds. Shaft C runs at 350 revolutions per minute while the peripheral speed of no gear in the box exceeds 301 feet per minute.

The speed box, augmented by the back gears on the head, gives the machine 12 changes of speed, the range and gradations of which are shown in the following table:

Spindle revolutions per minute.	Suitable drill diameters.	Drilling speed.—Feet per minute. Actual.	Theoretical.
265.09	½	34.60	35.0
209.86	5/8	34.34	34.3
173.68	¾	34.10	33.6
143.91	7/8	33.07	32.9
122.84	1	32.16	32.2
104.29	1⅛	30.72	31.5
95.41	1¼	31.22	30.8
75.53	1½	29.66	29.4
62.51	1¾	28.74	28
51.79	2	27.12	26.6
44.21	2¼	26.04	25.2
37.56	2½	24.56	23.8

A comparison of the figures in the third and fourth columns indicates the care exercised in the selection of gears, as in no instance do the cutting speeds vary from those theoretically correct by more than 0.84 foot per minute. Another point to which attention should be called is the irregular gradation of the speeds. The stock expression that "the speeds are in true geometrical progression" has become so common of late that many tool builders appear to think that no series other than a geometrical series is correct. That this is erroneous is well exemplified in the example before us.

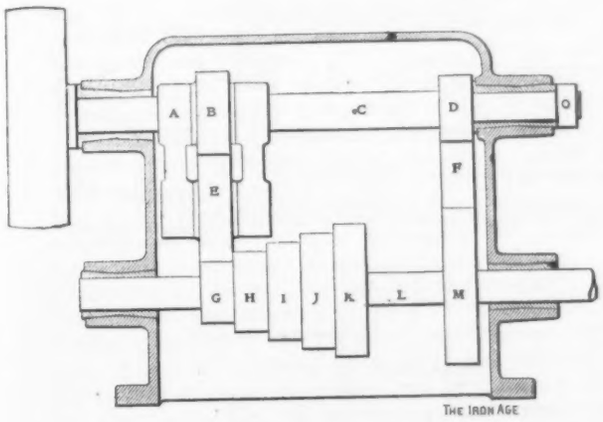


Fig. 2.—Section of the Gear Box.

If the speeds were in geometrical progression they would coincide with the following series of numbers:

Geometrical series.	Diameter of drills.	Peripheral speeds.
265.09	½	34.60
221.90	5/8	36.31
185.81	¾	36.48
155.54	7/8	35.63
130.26	1	34.10
109.04	1⅛	32.12
91.31	1¼	29.88
76.43	1½	30.01
64.00	1¾	29.32
53.60	2	28.06
44.85	2¼	26.41
37.56	2½	24.56

An inspection of the table will show that instead of giving a series of cutting speeds in which no speed is more than 0.84 foot too high nor 0.78 foot too low, the cutting speeds in the geometrical series are from 2.88 feet too high to 0.92 foot too low. In the one case the maximum error is but 2.47 per cent. and the average error but 0.834 per cent., while in the other the maximum error is 8.57 per cent. and the average error 3.903 per cent., or more than four and one-half times greater.

The radial drill illustrated is also made in 2½-foot size. Either size may be furnished with a five-step cone drive or a constant or variable speed motor drive in place of the gear drive described, and a swinging or swiveling table and a round or double end base. These machines are peculiarly adapted for light and medium manufacturing.

Another new feature is to be found in the back gears, which consist of but three gears and a clutch, are located on the head and may be engaged or disengaged from the front of the machine while running. The feeding mechanism furnishes four rates of feed, advancing by even increments from 0.008 to 0.020 inch per revolution of spindle, each of which is instantly available by means of a dive key, thereby eliminating all loss of time incident to shifting a belt or to operating under a feed of unnecessary fineness.

The arm is raised and lowered by power under the control of a conveniently located lever which, through steel tumbler gears, lowers it at double the elevating speed, thus economizing the time required to change from high to low work. The spindle is provided with both hand and power feed, quick advance and return, safety stop and hand lever reverse, and has ten changes of speed with the cone drive and twelve with the gear drive which, by being confined to the comparatively narrow limits of aproximately seven to one, are suitable for drilling economically all work adapted to the capacity of the machine. A plate attached to the speed box shows the proper speeds for different diameters of drills. The tapping mechanism is incorporated in the head and permits backing out taps at any speed with which the machine is provided. It is fitted with a friction clutch which, owing to the back gears being located between it and the spindle-gear, is obliged to transmit but one-sixth the pull required at the spindle. This clutch is operated by a lever, the handle of which extends around under the arm within convenient reach of the operator and is used for starting, stopping and reversing the spindle.

Large Orders for Mesta Engines.—The Mesta Machine Company, Pittsburgh, works at West Homestead, Pa., has recently entered some large orders for engines, among which are two additional blowing engines for the Ensley plant of the Tennessee Coal, Iron & Railroad Company, with air cylinders 84 x 60 inches and steam cylinders 44 x 60 inches. These make a total of 21 engines of this type and design installed by the Mesta Machine Company at the Ensley plant, believed to be the largest number of blowing engines of the same type in any blast furnace plant in the country. The company also has an order from the Youngstown Sheet & Tube Company, Youngstown, Ohio, for a pair of 44 x 60 twin reversing engines with piston valves, which will be used to drive the new universal mill now being installed. The Mesta Machine Company is shipping this week two 22 x 42 inch Corliss engines to the Alma Mfg. Company, Baltimore, Md. It is also building a horizontal-vertical compound Corliss engine for the Randolph-Clowes Company, Waterbury, Conn., with cylinders 20 x 40 x 48 inch stroke, and a tandem compound Corliss engine for the Lehigh Mfg. Company, Philadelphia, 20 x 32 inch, with 36-inch stroke, direct connected to alternating generator, and has an order from the Nelson Valve Company, Wyndmoor, Pa., for a 14 x 36 inch Corliss engine.

High Grade Electrolytic Ferro-Silicon.—Until recent years this article was not known commercially. George G. Blackwell, Sons & Co., Limited, Liverpool, England, first introduced the high grades of 25, 50 and 75 per cent. to the trade as more economical than the lower grades of about 11 per cent., while by its use practically no impurities are introduced into steel. Several makers of calcium carbide, one after another, turned their plants into making the high grades. Hence competition became so strong that a syndicate was formed. Messrs. Blackwell & Co. are, however, interested in and represent what is claimed to be the largest, newest and most up to date ferro-silicon works, which is operated independently. George G. Blackwell is now in this country, visiting the steel centres. At present he is at the Hotel Schenley, Pittsburgh, Pa.

The Harder Gas Furnace.

The present manner of firing steam boilers by feeding coal into a furnace underneath is laborious and exacting in the attention required if a regular supply of steam is to be maintained. Appreciating the imperfections of this practice fuel experts have come to look upon producer gas as a cleaner and cheaper substitute for coal. This gas is already in economical use in iron and steel furnaces where regular and intense heat is required. The attempts to use it under boilers have not been entirely successful, mainly because the gas was introduced immediately beneath the boiler, where the temperature was not sufficiently high to insure its proper mixing with the air and its being completely consumed. As a result there was a loss of a considerable amount of unconsumed gas, which was discharged as objectionable smoke. When the combustion in the furnace is not uniform and constant it is very difficult to regulate the admission of air and gas in proper proportions. If producer gas is to be successfully burned in a furnace it is necessary to provide for its thorough mixing with the air and its complete combustion before it is allowed to come into the chilling influence of contact with the boiler surface.

A furnace in which it has been the object to provide for these conditions is built by the Harder Gas Furnace Company, Title Guarantee Building, Birmingham, Ala., and was invented by its president, W. L. Harder. The construction is adaptable to any kind of a steam boiler and also to puddling and other furnaces. In the accompanying illustrations Fig. 1 shows a vertical longitudinal section and Fig. 2 a plan view of a Harder furnace as applied to a water tube boiler. The gas is conveyed to the boiler from the producer in overhead or underground pipes and passes through flues so arranged in the fire box as to bring it to a high temperature before entering the combustion chamber. A regulated supply of air circulates through conduits made of refractory material and is also brought to a high temperature before entering the combustion chamber. Being thus intensely preheated the gas and air commingle in the combustion chamber and the result, it is claimed, is perfect combustion, regular, intense heat and absolutely no black smoke.

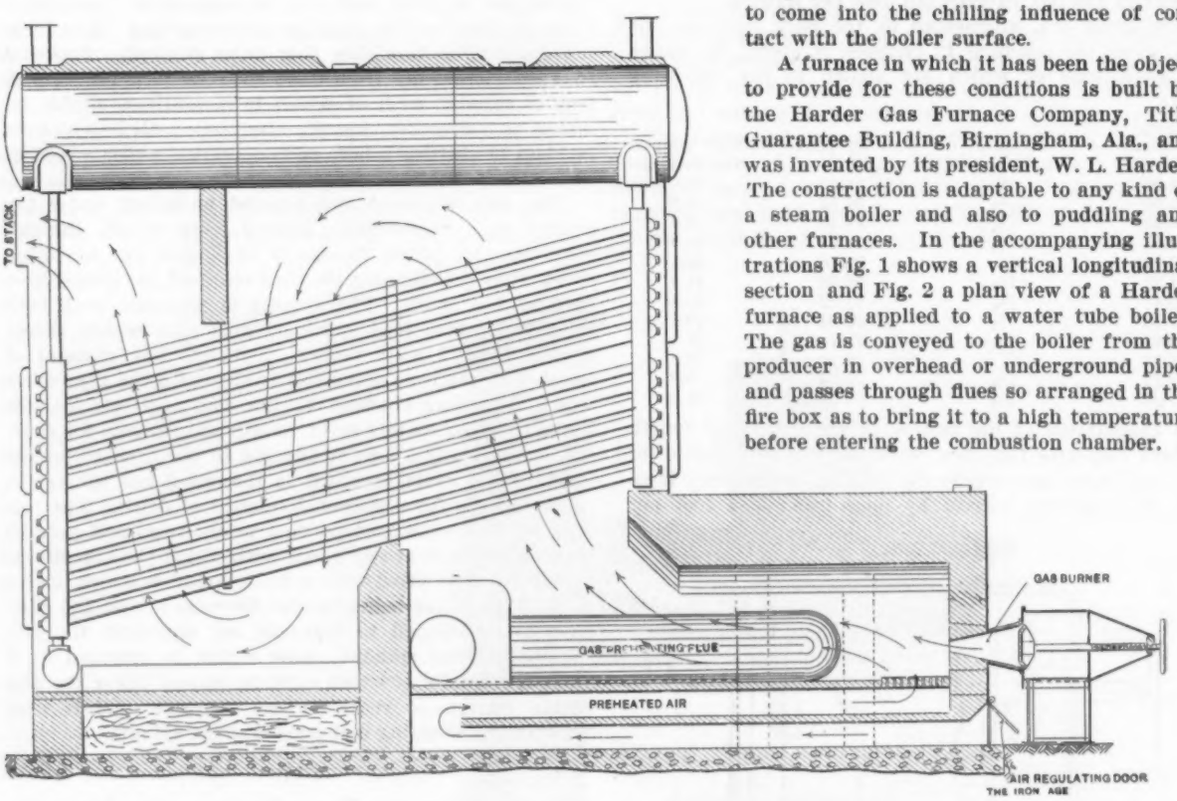


Fig. 1.—Vertical Longitudinal Section.

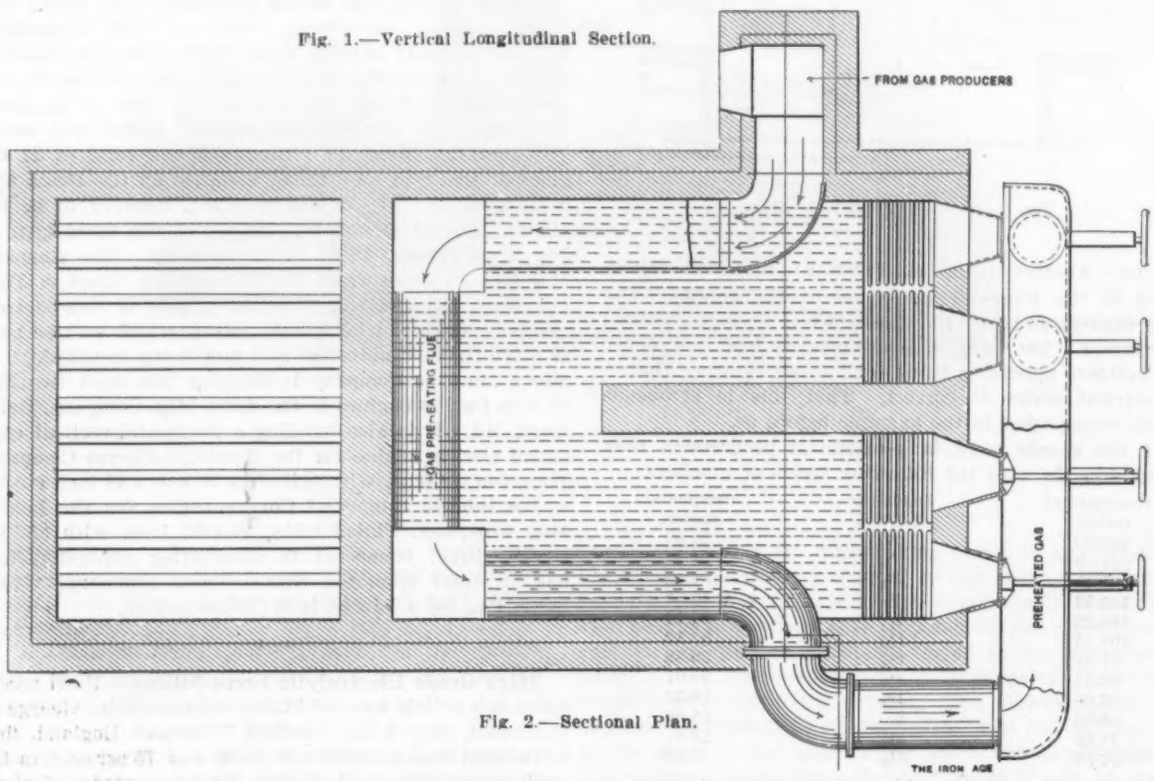


Fig. 2.—Sectional Plan.

Although it is in reality one continuous furnace, it may be said to consist of two parts—the main combustion chamber, which occupies the space directly under

the boiler adjacent to the bridge wall, ordinarily occupied by a coal burning furnace, and an auxiliary furnace or igniting chamber. The auxiliary furnace is entirely surrounded by fire brick so that it may absorb and retain heat from the burning gases. The radiation of this heat causes the gas to combine thoroughly with the air and be entirely burned before reaching the combustion chamber and striking the boiler. The chilling effect of the boiler cannot then cause the precipitation of carbon in the form of soot, which is the prime constituent of black smoke. At the center of the furnace there is a division wall leading part way back to the bridge wall and dividing the furnace into two chambers.

The gas supply is controlled by a butterfly valve, and after entering through the pipe at the side of the furnace near the front turns to the rear passing along the side wall across the back and forward along the other side wall, leaving the furnace at a point symmetrically opposite to its entering point. The gas then enters a gas box placed transversely across the front of the furnace. From this gas box there are two outlets, each provided with a gate valve, which terminate in flaring burners, one near the center of the front end of each ignition chamber.

Below the ignition and combustion chambers are the preheating flues for the air. The air enters the lower flues near the floor at the front and leaves them through openings near the bridge wall into the upper flues and is discharged into the igniting chambers through perforated plates just under the burners. The flues are made separate to break up the air and increase the heating surface of their walls, which receive heat from the combustion in the furnace. The admission of air to the flues leading to each chamber is separately controlled by adjustable dampers at the front of the furnace.

When the auxiliary furnace reaches the proper temperature and the air and gas are properly regulated it is claimed that the boiler will work steadily, the consumption of the fuel will be complete and the disadvantages attendant upon the unequal heating of the boiler and incomplete consumption of the fuel will be avoided. The preheating of the air and gas before introducing them into the ignition chamber is essential to the most successful operation of the furnace, and the proper regulation of both is necessary to complete fuel consumption. To further increase the temperature of the gases within the furnace the furnace floor beyond the bridge wall is made of fire brick and filled in beneath with earth so that after the furnace has been fired for some time this floor will become sufficiently heated to maintain the heat of the gases by radiation as they pass to the boiler flues.

Notable Concrete Work at Niagara Falls.

Novel Method of Constructing a Dam.

The Niagara locality has witnessed some very notable concrete work during the past summer, prominent among which is a column erected on the Canadian side to be tipped over to form a dam for the joint intake of the city of Niagara Falls, Ontario, pumping station and the Niagara Falls Park & River Railway. Officials of the city and of the railway company made complaint to the commissioners of Victoria Park that the construction works of the power development projects had resulted in lowering the water in the intake. The commissioners consulted Isham Randolph, consulting engineer of the Chicago Drainage Canal, who advocated a dam, but his plan for building it was a surprise. Following out his plan they erected a giant column of concrete 50 feet high and 7 feet 4 inches square on top of a trestle 20 feet above the ground level, with an approximate weight of 200 tons. It was built within wooden forms, and at every 8 feet of the column's hight a wooden wedge was inserted on one side of the column and extending to the center. The outside edge of these wedges was 12 inches thick, and they tapered to 6 inches at the center of the column. The object of the wedges was to break the column into six pieces when tipped over, so that the sections would conform to the bed of the river as nearly as possible. To prevent the sections floating off with the current a heavy chain weighing 800 pounds was run up through the center of the column to hold the parts when the column was broken by the fall which was successfully accomplished November 9. In its prostrate form the top of the column or dam comes 20 inches above the ground level, and in order that ice may be flooded from the intake, an opening is left between the end of the column and the river's edge. The column was tipped by means of jacks, operated at the base of the trestle on which it stands. The site of the work is only about 600 feet up from the edge of the Horseshoe Fall, but the dam will not in any manner affect the flow of the waterfall.

A Concrete Protection Wall.

Another notable work is a protection wall which the Niagara Falls Hydraulic Power & Mfg. Company has built along the north or down stream end of its power station, located at the water's edge in the gorge on the New York side of the river. This wall is made necessary by the great mounds of ice which every winter build at this point from the overflows and ice runs of the mills located on the top of the high bank. These ice mounds are marvelous in size, and pieces of them, or the huge icicles that grow on the cliff, form a source of danger both to the power house and the men at work there. It was the recognition of this fact and the previous experience of the Power Company that led Chief Engineer Harper to design this protection wall. The wall extends out 150 feet from the face of the cliff to the side of the power house nearest the water. Its greatest vertical section is about 75 feet and its thickness is 5 feet. It is built directly against the end of the power house and extends 10 feet above the highest part of the roof. Its foundation is taken down to solid rock at all points except about 15 feet of the end next to the river, where it is built out from the rock and strengthened with built-in iron work, so that it makes practically a cantilever truss at this point. Where necessary the wall is reinforced with steel beams. Two window openings are left in the wall for ventilation of the power house. These openings are protected with slide structural steel shutters, making the windows water tight in winter. The mixture was made on top of the bank and taken to place on an aerial cable way, being dumped into place by bottom dump buckets operated from the top of the bank.

A Cliff Faced with Concrete.

The greatest concrete work done by the Niagara Falls Hydraulic Power & Mfg. Company has been the facing of the high bank in the rear of its power station. This is indeed a remarkable work, but its great value to the plant is evident when the circumstances that led to its construction are stated. When this power station was built the débris slope of the bank was cleared away, leaving the shales of the cliff exposed to the action of the weather.

The company feared that in time the shale might crumble and break away to such an extent that the limestone at the top would be left shelf like over its power house. This would be a menace both to the power house and employees, and the company decided to make its work most substantial and enduring.

The concrete facing wall was designed by Chief Engineer Harper, and has been completed. It is 200 feet wide and 200 feet high and is said to be the greatest work of its kind in the world. At no point is it less than 2 feet in thickness, while at some places it is 12 feet thick. It drops to the level of the tail water under the power station, and rises fully 150 feet above the eaves of the station. To give a more staple support to the upper and heavier part of the wall, three pilasters were built, each of which is 6 feet wide by 80 feet high. Midway up the cliff an arch was sprung between two of the pilasters to protect a grotto in which a noted spring is located. This has been accomplished without in any way detracting from the strength and usefulness of the wall.

The Burden Iron Company, Troy, N. Y., has dismantled its blast furnace, which has been out of blast for some months, and is erecting in its stead a new furnace which will be 17½ x 80 feet. The designs are furnished by Frank C. Roberts & Co., Philadelphia.

Noteworthy Shaft Sinking at Detroit.

It had been known for many years that large deposits of salt underlie the limestone and sandstone formation at a depth of 1200 to 1500 feet from the surface in the vicinity of Detroit. Many drill holes had been put down into this salt bed between Fort Gratiot and Wyandotte. Through these water was pumped and brine made, and then by different methods of evaporation the salt was recovered. From the boring of the different holes it was learned that great difficulties were to be encountered in sinking a shaft into the salt bed for mining purposes.

The greatest trouble anticipated was the large amount of sulphur water just on top of the ledge and directly under it. About 3 or 4 feet in the ledge a crevice existed that gave a flow of 400 to 500 gallons per minute of very strong sulphur water. To sink a shaft through this crevice and shut off the water at this point was one of the great difficulties. Men could not work in the shaft any great length of time without becoming blind from sulphur fumes.

By the drill borings it was learned that the surface was 86 to 90 feet deep; the first 30 feet of this was hard clay and then 56 to 60 feet of mud or silt which was semi-liquid. At 60 feet there was a seam of sand and gravel about 6 inches thick from which flowed the first sulphur water. Again, directly on top of the ledge was another seam of sand and gravel and more sulphur water. Two feet under the ledge was a crevice flowing with sulphur water and 7 feet in the ledge was a second seam of sulphur water. Directly under this was about 4 or 5 feet of gaseous oil rock full of a hydrogen gas, and from there to the point of the salt bed the ledge was made up of limestone and sandstone in thick strata.

Several attempts had been made to sink a shaft at different places for the purpose of mining rock salt, but up to a year ago all of these attempts were failures. No one succeeded in reaching the ledge or getting through the mud and silt. In December, 1904, the Wallace Contracting Company of Duluth, Minn., took the contract to sink for the Detroit Salt Company of Detroit a three-compartment shaft 6 x 16 feet inside. The plans were submitted to the Wallace Contracting Company by the engineer of the Detroit Salt Company. This shaft was put down to a depth of 72 feet and was abandoned at that point, or 16 feet before the ledge was reached. Then the Wallace Contracting Company prepared plans of its own for a shaft which it thought would be practical and could be put down to the ledge. The new shaft was started on February 20, 1905, and was dropped and forced from the top down and carried to the ledge successfully.

How the Problem Was Handled.

The shaft, of which a vertical section is shown in Fig. 1 and a plan view in Fig. 2, consisted of a crib made out of 12 x 12 inch timbers, bolted together with eight 1½-inch bolts. Tar and oakum were used in every joint and the crib was made absolutely water tight from top to bottom, being constructed similar to the hull of a ship. This crib was built 2 feet larger each way on the bottom than the upper shaft dimensions and gradually tapered up for 18 feet, so that as the shaft was pushed downward to the ledge it had a bell shape for the lower 18 feet. After the ledge was reached the shaft was carried into the rock the same size as the bottom of the crib, or 2 feet longer and 2 feet wider than the shaft was intended to be when completed. It was sunk 18 feet into the ledge this size and the two crevices of water were passed successfully. Then a crib was started in the bottom of the shaft of the intended size of the shaft 6 x 16 feet inside and 18 inches of Portland cement was used between the crib and the rock. The crib and the cement surrounding it were built up to the second water crevice. Two-inch pipes were passed through the crib and into the crevice and the crevice calked between the pipes with oakum and tar, the water being thus forced to pass out through the pipes. Then the crib and the cement work were carried up to the first water crevice and pipes were put through the crib into this crevice and oakum and tar driven into the crevice between the pipes, the water being carried off as below. The next step was building the crib up to the top of the ledge and cementing behind it, while 2-inch pipes were passed through the crib to take care of the water running out on top of the ledge. The crib was then carried up into the bell of the drop shaft a distance of 6 feet and cement mortar filled tight between the two cribs. After all the cement had set gate valves were used on all the pipes. When these valves were shut four-fifths of the water was shut off. A small leakage showed at the top of

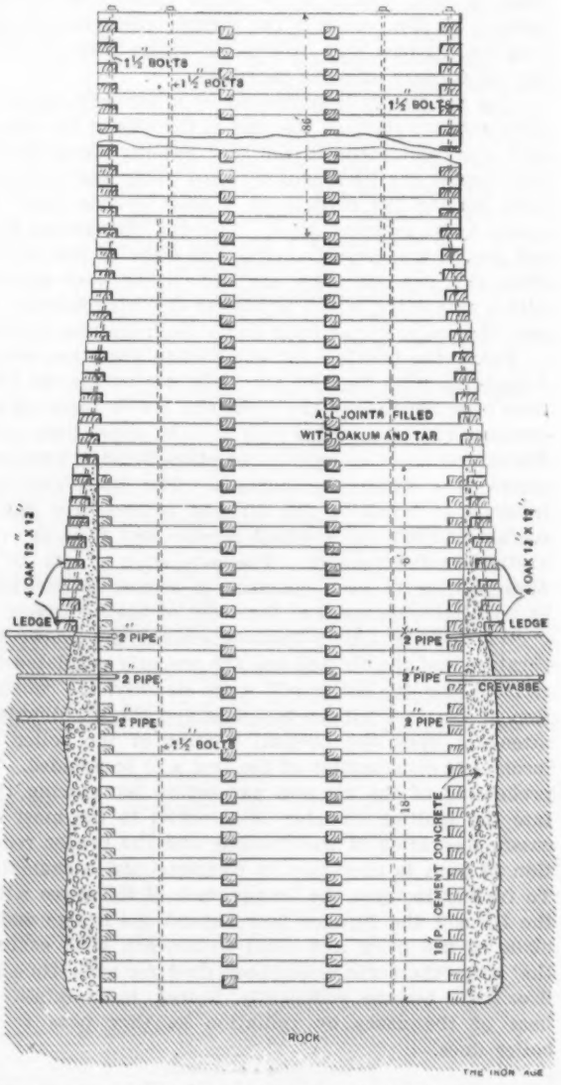


Fig. 1.—Cross Section of Shaft, Showing Method of Cementing to Shut Out Water at Bottom of Drop Shaft.

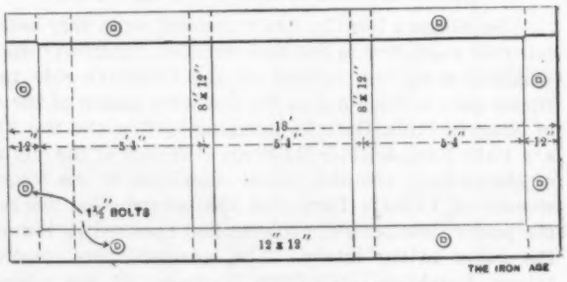


Fig. 2.—Plan of Shaft.

the inside crib. After this the inside crib was carried up 2 feet further and cement used as before. All the pipes passing through the crib were then connected together and one pipe carried to the surface, to which was attached a No. 8 pump. Seventy-five barrels of cement of about the consistency of cream was pumped into these pipes, when every gallon of water was stopped. This all practically assures the success of the undertaking, as from now on it is believed little difficulty will be encountered.

Dangers from Sulphur Gases.

Sinking the shaft to the point it has reached was fraught with many dangers from sulphur fumes and

gases. Two fans were employed for ventilating and for driving out fumes and gases, one having a capacity of 3000 and the other of 15,000 cubic feet per minute. But even with this great current of air going down one compartment and up the other two men could remain in the shaft only a short time. Frequently a man would lose consciousness in 30 minutes, and several times during the progress of the work all of the men were taken out of the shaft in an enfeebled condition. One great trouble the workmen had was with their eyes, the sulphur fumes causing blindness and great pain. Some miners were obliged to stay in a dark room three or four days after working as many days in the shaft. Another serious trouble the contractors had was with the sulphur water, which was so strong it would eat out the castings and iron pipes in a short time. The water end of the pumps had to be watched very closely, as the water would eat off the threads on the end of the rods and the rods had to be changed every few days at the most.

The Wallace Contracting Company has now turned over the shaft to the Detroit Salt Company, which will continue it, the latter company being convinced that the shaft is now an assured success. It is quite likely that in the near future other shafts will be sunk to reach this great salt bed in view of its great commercial value.

Geo. W. Wallace and Harry Roberts of Duluth entered on a serious undertaking in starting to sink a shaft where for 20 years every attempt had met failure and where every eminent engineer acquainted with conditions predicted a like outcome. That they succeeded in ledging their shaft is proof enough of their skill, energy and persistence.

The Ten-Year Clause of the Trade-mark Law.

WASHINGTON, D. C., November 14, 1905.—A decision of great importance to manufacturers and trademark owners has been rendered by the Commissioner of Patents, in which he holds that the so-called ten-year clause of the new trademark act which went into force April 1 does not authorize the registration in the Patent Office of trademarks, even though exclusively used by their alleged owners for ten years preceding the enactment of the new law, unless the mark is of such a character that it could be protected in the absence of registration by action brought in a court of equity under the common law.

It was naturally assumed that under the ten-year clause any trademark exclusively employed by a manufacturer or dealer for ten years prior to April 1, 1905, could be registered under the new law, and many applications have since been made upon that understanding. In nearly all instances the marks thus offered for protection have been registered, but in the case upon which the Commissioner has just ruled there is presented an illustration of a class of marks employed by their users for ten years or more, but which, although in undisputed use, could not have been protected at common law. Prominent in this class of marks are devices in the similitude of the national flag, the coat of arms of the United States or of a State, the official seal of any branch of the Federal or State governments, geographical and other names which cannot be appropriated to the exclusive use of an individual, &c. All such marks the Commissioner holds to be nonregistrable.

Used a State Coat of Arms.

In the case upon which the Commissioner has just ruled registration was refused a trademark which was in effect a representation of the coat of arms of the State of Maryland. The applicants had added certain features to the device, but the Commissioner holds that such additions are not such as to destroy the identity of the coat of arms and therefore the right of registration must depend upon whether the ten-year clause of the new law operates to nullify the prohibition in the statute against the registration of the coat of arms of a State. The Commissioner's decision in which the mark in question is held to be nonregistrable is in part as follows:

"Section 5 of the act of February 5, 1905, provides in effect that no mark shall be registered which 'consists of or comprises the flag or coat of arms or other insignia of the United States or any simulation thereof or of any State or municipality or of any foreign nation.'

"Under this provision there can be no doubt that the appellants would not be entitled to register their mark if it were not for the following, contained in the same section of the act:

> And provided further, that nothing herein shall prevent the registration of any mark used by the applicant or his predecessors, or by those from whom title to the mark is derived, in commerce with foreign nations or among the several States, or with Indian tribes, which was in actual and exclusive use as a trademark of the applicant or his predecessors from whom he derived title for ten years preceding the passage of this act.

"The statute does not seek to confer upon the users of marks property rights therein which did not exist before the passage of the act. The statute presupposes the existence of the property right or ownership and provides merely that registration shall be *prima facie* evidence of that ownership. Since the statute does not purport to give title to the registrant, but is based upon the supposition that he already has title under the principles of common law, it is difficult to see how it could have been intended to apply to classes of marks which the Supreme Court has said are incapable of ownership by any individual

"Considering now the words of the statute relating to marks used for ten years it is to be noted that the proviso is to the effect that 'nothing herein shall prevent the registration,' &c. It is not to the effect that nothing shall prevent. It does not provide that all marks previously prohibited shall be registered if used for ten years without regard to the nature or character of the marks. It simply says that no prohibition stated above shall operate to prevent registration, and therefore leaves the statute in so far as marks used for ten years are concerned just as if it contained no specific prohibition. Some marks, however, would not be registrable, even in the absence of specific prohibition in the statute, since from their nature they are incapable of exclusive appropriation, and it was clearly not the intention of the above quoted proviso to admit all such marks to registration.

"It must be held that the ten-year clause of the trademark act does not permit registration in any case where the user could not in the absence of registration enforce his right to the mark and exclude others from the field by action brought in a court of equity." W. L. C.

Zenith Furnace Improvements.

The Zenith Furnace Company, Duluth, Minn., is building a thawing room for ore. It is connected with the stock house, and is a large inclosed structure into which ore laden cars will be received during cold weather on their arrival from the mines. Instead of the usual steaming device for thawing ore there will be a fan to blow dry heated air to and through the cars. The ore will thus be somewhat dried, and the heat will remain better than if from steam. The furnace company is now adding 300 feet to its coal docks, which will be ready to receive coal in a few days. It may add 500 feet more. Its probable receipts of coal during the season will be about 500,000 tons, a large part of which is shipped through to mines and other consumers. Probably about 200,000 tons will remain on dock at the close of navigation. Its furnace requirements are about 10,000 tons a month.

The Duluth Tar Company is now taking all crude tar from the Otto ovens of this furnace. The tar is refined at the works, and a part is sold while the rest is used for the manufacture of tar paper and roofing felt by a company in which the well-known Barrett Mfg. Company has a large interest. The use of tar as a paving material in connection with crushed rock is increasing in the Northwest, and the company looks for a large trade in that direction.

Parties interested in the Zenith Furnace Company have been instrumental in arranging for the location close to the furnace of a large works for the manufacture of stoves and ranges. It is proposed that several hundred men shall be employed. The arrangements for these works are nearly complete.

The Allis-Chalmers-Bullock Pattern Building.

A new pattern shop and storage building has recently been erected by the Allis-Chalmers Company for its electrical department, formerly the Bullock Electric Mfg. Company, at East Norwood, Ohio. The building is of modern construction throughout and is intended especially for pattern storage and pattern making. It is 50 x 150 feet in area, four stories high, and is located across the street from the main group of buildings comprising the Bullock works. All of the buildings are of buff pressed brick. The foundry is directly behind the pattern storage building, so that patterns have to be carried only a short distance. A railroad track crosses the street and connects both foundry and pattern storage building with the machine shops.

The slow burning mill type of construction has been followed, the floors being of heavy timber with no openings of any description. A tower in the rear of the building contains the elevator, staircase and main electrical wiring. There are no openings from this tower directly into the various floors of the building, but at each landing a fire proof sliding door opens on a platform from which a second sliding door leads into the main building. Thus any fire in the tower or elevator shaft has little chance of communicating to the main part of the building. All parts, including the tower, are equipped with automatic sprinklers. Heating is carried out by the hot blast system, all the air ducts being built in the walls, thus avoiding the use of galvanized iron pipes. Each floor consists of a single large room, and the two upper stories are provided with suitably numbered racks for holding patterns, of which approximately 30,000 can be stored.

The second floor, shown in the accompanying illustration, is used as a pattern shop and provides room for 40 pattern makers. The shop is equipped throughout with the most approved forms of wood working machinery for pattern work. Each tool is driven by an individual electric motor, thus allowing the tools to be placed wherever most convenient and doing away with all line shafting. All parts of the building are exceptionally well lighted, as the rooms are comparatively long and narrow, with windows on all sides and with the interior walls coated white. Artificial illumination is provided by clusters of incandescent lamps equipped with reflectors and provided with pendant switches. Each bench has a cluster of lamps directly over it, giving more effective lighting than could be obtained from fewer arc lamps spaced farther apart.

The first floor is used as a storage room for small dynamos, motors or other apparatus carried in stock. It is divided into two bays running the entire length of the building and separated by a line of columns, which, together with other columns at the side walls, carry the tracks for two 5-ton traveling cranes. Freight cars can be run into one end of the building on a depressed track and material can thus be loaded or unloaded directly in the room and carried to any part of it. The cranes are of Pawling & Harnischfeger make, each equipped with three electric motors with suitable controlling devices.

James T. Stewart & Co., Pittsburgh, Pa., were the contractors for the building.

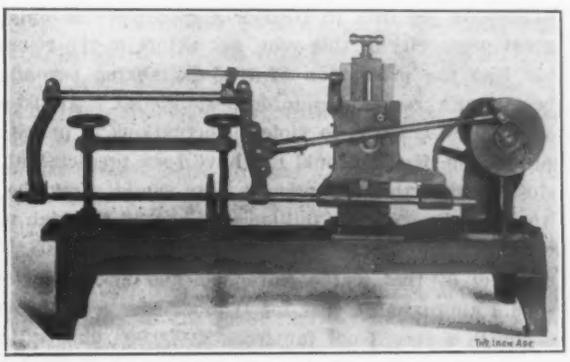
The Pattern Shop on the Second Floor of the New Building at the Bullock Works of the Allis-Chalmers Company.

Steam Turbines in Washington Terminal Station.—For the large union station at the Washington terminal of the Pennsylvania Railroad Company steam turbines were selected as prime movers for the power plant partially on account of the limited amount of space devoted to that purpose. Four 500-kw. machines have been ordered from the Westinghouse Machine Company, East Pittsburgh, Pa., adapted for driving alternating current 60-cycle generators. Dry saturated steam will be used at 150 pounds pressure and 25-inch vacuum, and the turbines will be capable of developing 670 electrical horsepower each. The alternating current generators will be of the turbo-rotating field type, with two poles and a frequency of 7200 alternations per minute at a normal speed of 3600 revolutions per minute. They will deliver three-phase current at 2300 volts and being of the inclosed type will operate practically without noise.

The Pittsburgh Coal Washer.—In the description of this apparatus printed in *The Iron Age* of November 9 the statement was made, on the authority of the company, that "With this apparatus one man and a boy can wash 100 tons of coal in eight hours." We are advised that this should have read "1000 tons of coal in eight hours," the machine being capable of washing this amount of coal in the time specified.

A New Robertson Rapid Cut Power Saw.

The power saw herewith illustrated and made by the Robertson Mfg. Company, Buffalo, N. Y., differs from previous designs in the support of the saw frame. As will be noted, the frame is supported on a swinging carriage which is mounted on an upright column, the point of suspension being adjustable vertically. Where large work is being cut, particularly such as square bars, if it is required that the cut go to a certain depth and stop parallel it may be accomplished by raising or lowering the swinging carriage on the upright column to the proper hight. The saw feeds by gravity and is reciprocated in such a manner that the frame is raised slightly on the return stroke, relieving the drag on the point of the teeth, which increases the length of life of the saw. The saw is back geared with a ratio of 3 strokes to 1 revolution of the pulley and is provided with a quick starting clutch. No countershaft is required. With a 24-inch blade the saw has a capacity up to the equivalent of stock 12 x 12 inches in cross section. For smaller work the saw arm



The Robertson Power Saw, with Adjustable Saw Frame Carriage.

is movable on the frame bar to accommodate blades of various lengths. The stroke of the saw is also adjustable in length. The machine is heavy, weighing about 650 pounds, and all fitted surfaces are planed, giving the saw solidity and stability.

The Crucible Steel Company of America.—This company, whose offices are in the Frick Building, Pittsburgh, has bought from the American Bridge Company part of the property formerly occupied by the Keystone Bridge Works, at Fiftieth street and Allegheny Valley Railway, Pittsburgh, paying $140,000 for it. The ground contains about 3 acres, adjoins the Crescent Works of the Crucible Company, and will be used for large additions to that plant. The Crucible Company has also bought from Epping, Carpenter & Co. a site at Thirty-seventh street and Allegheny Valley Railway, having a frontage of 1000 feet and 150 feet deep. The cost of this property was $150,000. The ground was formerly occupied by the Pittsburgh Bridge Company and adjoins the Park Works of the Crucible Company, and will be used for large additions and improvements to those works. Plan for the additions to the Park and other works have not been fully drawn, but it is the purpose of the Crucible Company to enlarge the output of these two plants in the manufacture of finer grades of steel.

The new Standish furnace of the Northern Iron Company, Standish, N. Y., was blown in November 5. The charcoal furnace which it displaces was blown out April 23, 1905, and was then entirely dismantled. In connection with the erection of the new furnace there was built one new 16 x 71 feet stove of the Foote type, and the new power installation consisted of two 300 horsepower Sterling boilers and a 44 x 84 x 60 inch long crosshead Allis engine. The new stack is 15 feet 6 inches bosh, 9 feet 6 inches hearth, 10 feet stock line and 80 feet high. It will run on Chateaugay concentrates exclusively and will make low phosphorus "Chateaugay" pig iron Pilling & Crane, 600 Girard Trust Building, Philadelphia.

Central American Notes.

SAN JOSÉ, C. A., November 2, 1905.—These Republics are closely watching the triangular controversy between Venezuela, the United States and France; not that they favor President Castro of Venezuela, but like all little nations they are afraid of any possible encroachments on the part of a great power. During such conditions as this Europeans generally try to secure a business advantage over the United States by declaring that doing business with America endangers Latin-American freedom in every way.

Notwithstanding this, it is clearly evident that American goods are becoming more popular every day in these countries. Even the shape, size and hight of buildings are changing, as they use American steel frames, girders, columns, &c., more and more. This surely has another advantage besides beauty; for in these earthquake countries they find light steel structures the best. At San Salvador fully one-third of the business houses, residences and Government buildings now employ steel in their make-up. Contracts for new barracks, market places and schools are now spoken of. These people are decidedly progressive in material ways, not a few of the appliances of modern civilization being common here. Street cars, telephones, telegraphs, cables and electric lights have been in use for several years.

Those who favor the Panama Canal route must now feel that they have another strong reason for advising the adoption of that route instead of the Nicaragua proposition. The eruption of Santiago volcano in Nicaragua produced disturbances in several regions in the vicinity of the proposed canal route. It does not need much imagination to foresee that in such a volcanic region the canal would always be in danger of partial or total destruction. There are half a dozen volcanoes in the region known as the canal route of Nicaragua.

Ecuador's railroad from Quito to Guayaquil, now under construction, is being pushed by the American contractors. A number of bridges will be put up in the next six months, most of these being very large, as they have to span the chasms and ravines in the Andes Mountains. The country opened up by the new line will appeal to Americans because of the mildness of the climate and the immense crops produced, especially coffee, chocolate, beans and cotton. The forests are well supplied with ebony, mahogany and ironwood. The people are not so progressive as those further north, but with the aid of the Government new ideas and methods of living are bringing about a larger importation of foreign goods.

The Peruvian Pasco mines are receiving large consignments of machinery, and a number of Americans have been employed as mechanics, &c.

Honduras is busy reconstructing roads in the interior and, above all, the line going westward from Puerto Cortez, recently washed away by the cyclone. Bridges over the Chamelican and Ulna rivers will also have to be replaced, and two shipments of rails, cars and material are expected shortly. Work on the main road between San Lorenzo and Tegucigalpa, the capital, has been prosecuted very slowly, but the mountain sections have been nearly completed. Considerable dredging will be needed through the esteros and nearly all the way from Amapala, on the Pacific, to San Lorenzo, on the mainland. As trade is growing lighthouses are more needed than ever, and a regular line of steamers to connect with the ocean packets is now talked of. In fact the three Republics, Salvador, Honduras and Nicaragua, all border on the Gulf of Fonseca and still there is not a regular line of local steamers to connect La Union and Amapala with the Nicaragua coast. Much of the mineral product of the three countries, consisting of ores of copper, lead and iron, containing gold and silver, are exported from the vicinity of Fonseca Gulf. C.

The Boston Testing Laboratories of Albert Sauveur have been removed from 446 Tremont street, Boston, to the Rotch Building, Harvard University, Cambridge, Mass.

THE IRON AGE

1855—1905.

New York, Thursday, November 16, 1905.

DAVID WILLIAMS COMPANY, ... PUBLISHER
CHARLES KIRCHHOFF, ... } EDITORS
GEO. W. COPE, ... }
A. I. FINDLEY, ... }
RICHARD R. WILLIAMS, ... HARDWARE EDITOR

The Cast Iron Pipe Trade.

The prolonged activity in the cast iron pipe trade is one of the interesting features of these prosperous times. It was once a tradition of the iron trade that cast iron pipe was a laggard in the march of iron products, and that its activity was an indication of the approaching close of a prosperous period. But this time-honored belief has been dissipated by the events of the past two years. Cast iron pipe has broken its record and has shown that it can be in heavy demand concurrently with an increasing consumption of other iron and steel products. One of the surprises of the iron trade in the slump of 1903-04 was the maintenance of dividends by the leading cast iron pipe interest, but an even greater surprise was the advance in the rate of dividend on its preferred stock to the highest rate provided for in its charter when other iron and steel companies were just beginning to recover from the depression in trade which they had experienced, and this was speedily followed by the declaration of an initial dividend on the common stock. In the case of some industrials action of this kind might be regarded with suspicion, but the management of the company referred to has been so conservative that no doubt is entertained that the dividends declared have been much more than earned. It may, therefore, be quite safely taken as very strong evidence of the existence of exceptionally prosperous conditions in this branch of the iron trade.

The assertion has been made frequently this fall by men of long experience that never before had they known such an active demand for pipe on the eve of winter. The foundries are closing the pipe laying season with order books so well filled and the pressure for delivery so strong that they have been unable to accumulate any stock of the standard sizes to fill small orders for prompt shipment. The demand of this character has been insistent, indicating that numerous consumers will be unable this fall to make improvements which they had projected. An illustration of the high tide of activity now being realized in the pipe trade is presented in the case of a pipe manufacturer who some time since purchased a foundry that had long lain idle, for the purpose of wrecking it and selling the equipment, but before doing so he found his own works becoming so crowded with orders that he decided to repair the old plant with a view to temporary operation and it is now running on full time with several months' employment assured.

So encouraging are the prospects that old plants are being remodeled or enlarged that they may be able to turn out an increased product. New foundries are also projected, some of which will be built on a large scale. In this movement the South is conspicuous, the most ambitious project being that of the Tennessee Coal, Iron & Railroad Company. The entrance into the pipe trade of a pig iron producing company will introduce a new element whose development will be observed with interest. Hitherto the cast iron pipe makers have not been closely affiliated with pig iron manufacturers. All have purchased their iron in the open market. In no other branch of the iron trade handling such great quantities of raw materials have consumers been so dependent upon outside sources for their supplies. It may be assumed that if the Tennessee company makes a success of its proposed pipe foundry it will be found desirable by the large pipe manufacturers to own blast furnaces and thus control their supply of raw material. There are indications that the use of direct metal from the blast furnace will hasten this tendency. It is being successfully done by pipe manufacturers on the other side of the Atlantic.

Record Breaking Blast Furnace Operations.

The columns of *The Iron Age* of November 9 gave striking testimony to the achievements of the iron and steel works of the United States in October. For the country the greatest month's record in the history of the iron trade was made in pig iron and in steel ingots, while at numerous finishing plants high mark was reached. The total output of 2,053,127 tons of coke and anthracite pig iron in October emphasizes not only the great prosperity of this year, but points to the remarkable leap the production of 1905 is making beyond the best year's record heretofore established. Accustomed as the iron trade is to violent fluctuations in prices and production, it still would not have been predicted at the close of 1904 that the present year would carry the pig iron record nearly five million tons beyond the high mark established by 18,009,252 tons for the year 1903. Yet the fact is that if the November and December totals should approximate that for October the year 1905 will establish a record not far from 22,900,000 tons, estimating the production of charcoal furnaces at 30,000 tons a month, which is somewhat in excess of the rate for such furnaces in the first half of the year, as shown by the official figures.

It will be interesting to note that for fractional portions of the present year the pig iron production has been equal serially to totals made in entire twelvemonth periods only a few years back. For example, in the first five months of this year the pig iron product was within 330,000 tons of that for an entire year so recent as 1897. In the first half of this year the total for 1898, a record year, was approached within 610,000 tons. Similarly the total for 1899, another record year, was almost reached in the first seven months of this year. At the end of August the total for this year had exceeded by more than a million tons the production of 1900. In nine months the record for last year had been passed, and by the end of October the make of pig iron was more than 800,000 tons in excess of the highest year's production, that of 18,009,252 tons in 1903. The figures are put side by side below and give an impressive picture of the place 1905 has been making among the wonderful years in iron:

	Gross tons.
Pig iron production first five months 1905	9,323,175
Pig iron production calendar year 1897	9,652,680
Pig iron production first six months 1905	11,163,175
Pig iron production calendar year 1898	11,773,934
Pig iron production first seven months 1905	12,935,110
Pig iron production calendar year 1899	13,620,703
Pig iron production first eight months 1905	14,808,783
Pig iron production calendar year 1900	13,789,242
Pig iron production first nine months 1905	16,738,283
Pig iron production calendar year 1904	16,497,033
Pig iron production first ten months 1905	18,821,410
Pig iron production calendar year 1903	18,009,252

In connection with the record of 1,963,717 tons for the coke and anthracite furnaces made in May of this year—the greatest month's total previous to that of October—attention was called to the fact that this was well up toward the limit of the country's effective blast furnace capacity. It was plain then that a number of

stacks were nearing the end of campaigns which in many cases had been prolonged beyond expectations. The percentages of fit furnaces then out for repairs was lower than the average, and the stoppages in recent months have shown how such exemption must be compensated for eventually. Very few new furnaces have been started up since May, but those repaired meantime have done excellent work. October showed many instances in which favorable conditions had yielded unusual outputs. Ohio, for example, had an effective weekly capacity of 78,000 tons on November 1, as against 67,000 tons on June 1. The South increased from 48,000 tons on June 1 to 52,000 tons on November 1. New York advanced from 19,000 tons on June 1 to 23,000 tons on November 1. The Pittsburgh district, with two furnaces out on November 1, had a capacity, based on the October production, of 108,500 tons a week, as compared with 109,000 tons on June 1, when all its furnaces were going, spiegel capacity being omitted in both reckonings. It is significant of effective work being done that the 278 coke and anthracite furnaces active on November 1 had a capacity of 460,449 tons a week, as against 443,092 tons a week for the 281 furnaces active on June 1.

It can safely be said that present pig iron production is close to the utmost that may reasonably be expected from the present blast furnace outfit, allowing for the average liability to accidents and stoppages for repairs. If any near approach to present consumption of pig iron is to continue, the certain idleness at no distant day of the less fit furnaces, whether by their abandonment or by their going out for rebuilding, will furnish place for all the furnaces now building or projected.

A Water Power Problem.

The development of water powers has constituted a most important field of engineering endeavor ever since it became possible to utilize power at a distance when transmitted electrically. It offers a solution of many of the perplexities that confront steam plant operation, chief of which are the increasing cost of coal and strikes and tie ups that hinder its transportation. To realize the maximum efficiency in turbine installations it is necessary to look to other than the wheels themselves, which have been improved little in recent years and may generally be relied upon for a standard maximum efficiency of 80 per cent. When this proportion of theoretical power is not actually obtained in an installation the fault is to be found in imperfections in the design of the waterways, improper setting, failure to select the right machine for the head and volume of water available or inefficient transmission. In many cases it is not easy to determine whether or not the installation is as efficient as it should be, and doubtless many water power plants are wasting power because no satisfactory test has been made. Conditions of this sort are more frequent where the machinery is driven direct from the turbine, but where the power developed is immediately transformed into electric energy a check on the prime mover is always at hand in the electric instruments on the switchboard. The manufacturers of turbines sometimes dispute the accuracy of such indications, declining to accept them as final when the efficiency of the water wheel is in question. To go back of the electrical measurements there has been used in certain tests an absorption dynamometer, claimed to give exact measurements of power even in units exceeding 2000 horse-power.

Disputes between manufacturers of water wheels and their customers as to power developed are frequent. It is becoming common for owners to go to the expense of measuring the head and volume of water available so that they may know the theoretical horse-power and be in a position to contract for a certain delivered horse-power. The turbine builders protect themselves against the chance of their machines showing to poor advantage due to improper setting by having the turbine tested before it is installed, at Holyoke, Mass., in the notable turbine testing station there located. A test obtained under perfect conditions may show the wheel to have more than the required horse-power, but when placed in its intended location the opposite result may appear, due to such causes as too small flumes or penstocks for conveying the water to the wheel, poorly designed draft tubes or the placing of two turbines so close together that their discharges react against one another. There are many other conditions that may cause trouble, and failing to properly calculate for them may result in the wheel's developed power being below the required amount. Cases have been reported where a wheel tested exceeded its contract by 10 per cent., but fell 10 per cent. below it when installed. For these reasons it is becoming the preferred course to test the turbine installation while operating under commercial conditions, rather than to abide entirely by the Holyoke test under perfect conditions, and it is proposed that the contract for turbine water wheels be based on a test in their final setting. It is probable that the expense to both the turbine builder and his customer would be increased, but it would remove the probability of controversies and legal litigations. Another important feature of turbine tests is that a knowledge is obtained of the power delivered at different gate openings and may be the means of indicating to the owner how to secure the most economical operation.

Agitation for smoke prevention is a good cause and if there is any power in the technical press it may well be directed toward the furthering of measures to abate the smoke nuisance. An article in the last issue and two in this one deal with smokeless methods of combustion. Their careful perusal is urged upon those who can find in them suggestions for improving conditions in the plants with which they have to do. As has been said before in these columns, efforts to reduce smoke have their own reward. It ought to be sufficient to feel that by avoiding the discharge of black smoke one is catering to the comfort of the community, but this ethical consideration is as nothing to the satisfaction of knowing that the coal bill is being kept down. A boiler furnace cannot be working at its best efficiency when it is losing the unconsumed gases which form the black factor in smoke. Where, then, is the defense for ignoring the possibility of ameliorating smoky conditions?

CORRESPONDENCE.

Experimental Desulphurization.

To the Editor: If Reginal Meeks will refer to *The Iron Age*, January 18, 1894, pages 105-107, he will find strong corroborative evidence as to the effectiveness of his second method for obtaining low sulphur in castings —*i. e.*, addition of ferromanganese to the ladle or cupola— set forth in his article on "Experimental Desulphurization," in *The Iron Age* of November 9.

In the older article referred to J. E. Thompson has summed up the results of the experience at the basic steel works of the Pottstown Iron Company in regard to sulphur. Although the diagrams given are based on the data furnished by 118 blows only, the whole course of our experience showed that these blows were typical of normal conditions. We found that when manganese was present in the iron as it came from the cupola in sufficient quantity it would prevent the absorption of sulphur during melting and would aid in its removal during

blowing. The general result was that, with 1 per cent. of manganese in the iron tapped, the sulphur in this metal would be less than 0.12 per cent., while that in the steel would be 0.04, or below.

The calculated sulphur in the mix was always kept at 0.06 per cent., or below, except through accident, and when there was not sufficient manganese in the mix, the sulphur usually ranged between 0.12 and 0.15 per cent. in the tapped metal. With low manganese mixtures the sulphur in the steel rarely exceeded 0.08 per cent., while even with high manganese the sulphur in the steel hardly ever was quite as low as in the original pig iron. This seems to show that the sulphur taken up in the blast furnace had as it were a stronger hold than had that absorbed in the cupola; possibly also that it existed in a different form or was differently combined.

Most of the sulphur taken up in the cupola is probably absorbed from the coke in the bed after the iron is melted, since it apparently made little or no difference whether the manganese was in the pig iron itself or was added to the mix in the shape of spiegel. The cupola being an oxidizing furnace, as is shown by the loss in the silicon and manganese content of the pig when melted, manganese ore can do no good as regards removing sulphur, since it passes directly into the slag without the manganese being reduced to the metallic state, in which alone it has effect.

We used a 10 per cent. spiegel to make the addition of manganese to the mix and it is undoubtedly better to use as low a grade as possible or convenient, since less manganese will then be lost in melting. Under the best conditions about half of the manganese will be oxidized in the cupola.

JOSEPH HARTSHORNE.

POTTSTOWN, Pa., November 13, 1905.

The Republic Iron & Steel Company.

The annual report of this company, covering the operations of the fiscal year ending June 30, 1905, showing net profits of $1,373,607.55, is much more satisfactory than the report for the previous fiscal year with its loss of $611,484.18. In 1904, however, dividends were paid, amounting to $357,925.75, while none were paid in 1905. The profit and loss account for the last year is as follows, as compared with the previous year:

	1905.	Increase.
Gross profits, after deducting all expenses except reconstruction, repairs, interest, &c	$2,508,068.28	$1,202,000
Reconstruction, renewals and repairs $803,866.59		
Interest 232,172.54		
Discount and expense *in re* bond issue 98,421.60		
	1,134,460.73	*425,795
Net profits	$1,373,607.55	$1,627,795
Dividends		*357,296
Surplus	$1,373,607.55	$1,985,091
Previous surplus	2,636,722.10	*611,484
*Surplus June 30, 1905	$4,010,329.65	$1,373,607

* Decrease.

The amount of the reserve for depreciation of ore and coal properties exceeds the amount of the first installment of the sinking fund under the mortgage, the latter due October 1, 1905.

The balance sheet, as of June 30, 1905, is as follows:

Assets.

Real estate, plants and other permanent investments		$41,947,049.26
New construction:		
May 1, 1899, to June 30, 1900	$1,218,203.44	
July 1, 1900, to June 30, 1901	1,164,175.26	
July 1, 1901, to June 30, 1902	2,003,183.95	
July 1, 1902, to June 30, 1903	1,681,040.32	
July 1, 1903, to June 30, 1904	457,985.87	
July 1, 1904, to June 30, 1905	728,980.37	
		7,253,569.21
Stocks in sundry companies at cost		439,338.07
Producing oil and gas wells, pipe lines and leases		260,823.72
Prepaid royalties on ore and prepaid mining expenses		589,095.36
Discount and expense *in re* bond issue—less pro rata for the year		658,952.13
Inventories of raw and finished materials		3,852,342.81
Accounts and bills receivable		3,265,223.06
Fund in bank for redemption of collateral notes		1,062,500.00
Cash on hand		4,303,604.83
Total		$63,632,498.45

Liabilities.

Capital stock issued:			
Preferred	$20,852,000		
In treasury	435,100		
		$20,416,900	
Common	$27,352,000		
In treasury	161,000		
		27,191,000	
			$47,607,900.00
Collateral trust notes			2,759,000.00
First mortgage bonds			7,146,000.00
Collateral note coupons due July 1, 1905			78,750.00
Accrued interest on bonds			89,212.50
Accounts payable			1,279,117.73
Deferred payments on coal property			37,500.00
Reserve for taxes and insurance			244,091.04
Reserve for depreciation of ore and coal properties			311,696.32
Reserve for possible losses in collection of outstanding accounts and bills receivable			68,901.21
Profit and loss account: Surplus			4,010,329.65
Total			$63,632,498.45

The comments of Alexis W. Thompson, the retiring president, accompanying the financial statement are, in part, as follows:

"The gross sales amounted to $22,188,842.79, an increase of $4,946,273.41 over those of the previous year, while the net profits from operations amounted to $1,373,607.55, as against a loss of $611,484.18 in the year before.

"During this period $728,980.37 were expended for new construction, the larger part of which was required for the completion of our rail mill, sheet and tin bar mill at the Bessemer plant in Youngstown, Ohio, the contracts for which were let in November, 1904. The new rail mill was put in successful operation on April 22, 1905, and since that time the results have fully justified the expenditure, enabling the company to increase the variety of its products and to finish at its own mills the steel products of its Bessemer converters.

"Contracts have also been let for the erection of a new blast furnace, metal tracks and of a mixer, so that the company may procure a large percentage of molten metal for direct use in its converters, thereby again reducing the cost of steel material.

"During the past fiscal year the Bessemer plant produced 405,000 tons of finished steel. Its product should increase in this calendar year to 500,000 tons, and, when the above improvements are completed, to 600,000 tons.

"The development of our coking coal lands has progressed very satisfactorily. The work is well under way, and, in the near future, the company will supply itself with all the coke required for the blast furnaces in the Valley district.

"Since our last report the financial arrangements of the company, then under negotiation, have been successfully terminated, an issue of $10,000,000 of bonds having been placed. The collateral trust notes heretofore issued have largely been paid, and the remainder thereof will be redeemed on or before maturity, in October, 1907.

"In common with all the other companies operating in the Birmingham district, our operations there were considerably interfered with by the differences with the miners. The effect thereof has, for a time, lessened our profits, but the situation is now under control and our works are in full operation. What labor differences we had in the North were quickly and satisfactorily adjusted in a conference at Detroit, in less than a week from the time negotiations began.

"All our plants are in the best physical condition, and, with the company permanently financed and our order books filled well into next year, we look confidently for a very prosperous year."

The steel works of the Dominion Iron & Steel Company, Sydney, Nova Scotia, are making very satisfactory progress under William Brown, superintendent of the open hearth furnaces, and W. D. Jones, superintendent of the blooming mill, as shown by the following figures:

	Gross tons
Largest ingot output (gross tonnage) in any one month—October, 1905	18,915
Largest preceding output for one month—June, 1903	15,078
Increase	3,837
Largest blooming mill output (gross tonnage) in any one month—October, 1905	15,262
Largest preceding output for one month—October, 1902	14,016
Increase	1,246

How Germans Sell Machinery in Foreign Countries.

BY G. P. ALTENBERG.

Owing to the prosperous times in our own country American machinery manufacturers have ignored the progress being made by the Germans. The Teuton is forging ahead, building up his foreign trade on such a substantial basis that unless Americans at once change their methods we shall soon find ourselves outgeneraled in Europe, South America and the Orient. That the Germans copy our machinery needs no comment, but the fact that they have built up a big volume of business in copies, selling them in direct competition with the genuine American article, shows such a high order of business ability that it demands the serious consideration of those who come into personal competition with them.

The secret of German success lies in their Old World thoroughness, coupled with ability not only to copy American machinery but American methods of hustling for business. The German organizes his foreign sales department on totally different lines from those employed by the American.

The Training of Salesmen.

The rapid growth of German foreign trade is largely due to the "fitness" of the men sent out to get business. Before sending a salesman abroad he is thoroughly trained for the position. He must work in the drafting room to learn something about the design of the machines, but principally how to lay out and make a correct scale drawing of any complete plant. Then he must work as assistant to the inspector, who runs and tests each machine before it is shipped. Here he learns how to operate the machines. He now goes out as a helper to the expert who sets up and starts the machines in the customer's works and later is sent out alone to do so.

Right here is one place where the German gets ahead of us. When he sells machinery he aims to have it erected and started by his own expert. What a world of trouble this avoids for both the buyer and the seller! We all know the countless complaints that vanish into thin air as soon as we send an expert from the factory to see why a customer's machine is not giving satisfaction. "They did not have it properly adjusted" is the expert's usual report to the house.

The reader must not get the impression that the salesman's education consists of looking on while the inspector tests machines or while the expert is erecting a new outfit. On the contrary, this part of the business must be learned thoroughly. The salesman must not do it once or twice but work at it a year or two, especially at erecting machines, after which he is sent out, usually without any help, except such "laboring help to do the heavy lifting" as the customer supplies. Here is the real education. Far from the shop, without assistance, he is thrown entirely on his own resources. When he returns he must bring a letter from the customer indorsing his work and the machine and if possible bring a fresh order.

About this time he is given a chance to show what he can do as a salesman in his own country. He now studies foreign languages, and if he is successful as a salesman at home he is sent abroad equipped with catalogues in the language of the country he visits. When such a man looks at his customer's work he can tell exactly what machine is needed and the best and cheapest way to do the work.

How a Salesman Assists a Buyer.

The foreign buyer is usually unacquainted with the proposed machinery. If the order is important and a complete installation is wanted the customer will likely say: "I want a plan and estimate for a plant to produce 1000 chairs, 25 railway cars or 5 automobiles per day." He expects the salesman to tell him what machines are required, how to place them and what the daily output will be on the different kinds of work. The German buys a few drawing materials and in a day or two he returns with a rough plan worked out to scale showing where each machine should be placed, the method of driving it, power, transmission, &c., and hands in a carefully prepared estimate of the cost of the machines and accessories. He explains which part of the work each machine is to do, how much it will produce per day, all in the buyer's language, and wins his confidence and takes the order. If the customer has already bought a sample machine and is not getting the best results out of it the salesman will adjust it, show the workman how to handle the machine and, if need be, he can run it himself better than any one else in the place.

German Employers Pay Liberally.

The German is far too shrewd to train a man for his business and take chances of losing him to one of his competitors. He realizes that the longer a salesman works the same field the more valuable he becomes through the personal friendship that grows between the salesman and his trade. A German manufacturer pays such men very high salaries and good commissions and gives attractive inducements to a man to stay, but protects himself at the same time.

A long time contract of employment is usually made which can only be terminated by three to twelve months' notice. It is customary to pay expenses, a salary which increases every year and a commission, the latter being arranged on a sliding scale, so that the more a man sells the higher his rate of commissions.

From the time the firm begins to educate him a certain percentage of the salesman's salary is deposited at interest in a bank as an indemnity bond. If the man enters the employ of a rival firm or engages in the same business himself within one or two years after quitting the amount deposited is forfeited to his employers. This sum is seldom disturbed, so that the longer the man remains with his firm the greater is the deposit. The legality of such an arrangement has several times been tested in the courts and held valid on the ground that the knowledge which an employee must necessarily acquire of his employer's business, customers, prices, models, weaknesses, &c., is the property of the employer and cannot be used either to his prejudice or for the benefit of any one else without compensating him therefor.

Germans sell direct to their foreign consumer so far as practicable. The salesman is usually located in a good foreign city, where a modest office or store showing a few machines is maintained. These establishments are models of economical management. Seldom do they employ more than one or two inexpensive clerks to write letters, send out circulars and keep the salesman or manager acquainted with the mail inquiries while he must be constantly out in the city or on the road hustling for orders. Only a limited territory is allotted to such an office, to keep traveling expenses down and to assure the ground being well and frequently covered. By keeping expenses down they can afford to maintain offices in nearly every country.

Long Credits Given.

Germans give just as long credit abroad as at home. With proper management and ordinary caution there is no more risk in giving credit in most foreign countries than in the United States. Most of the trouble American firms have had with foreign collections can be traced to exaggerations in their catalogues and letters, negligence in filling orders and careless packing.

The necessity of publishing catalogues in the language of the buyer has been impressed on American manufacturers, and our most progressive ones do so, but that is not sufficient. Catalogues for foreign markets should not contain the wonderful and impossible claims and exaggerated praises of the goods so common in many American catalogues. In this country we are all accustomed to hearing everything praised and exaggerated and do not pay much attention to it. The foreign customer is not built that way. If he contemplates buying anything he reads every word in the catalogue, and when the article arrives he checks it up to see if it comes up to the promises. Instead of calling everything "the best, most efficient and heaviest built" it is better to tell its correct weight, describe its construction and method of operation, tell how much of one and how much of the other kind of

work it will do. The sale is made more easily because the buyer obtains the information he wants and when he gets his goods he is not disappointed.

Tariff Revision in Canada.

Inquiry at Montreal.

TORONTO, November 11, 1905.—This week the Tariff Commissioners were at Montreal, where, though the Canadian Manufacturers' Association was not quite prepared for them, fifty deputations presented applications for a hearing. Among those who desired to lay their views before Mr. Fielding and his fellow commissioners were representatives of industries producing the following articles: Steel and iron rolled products, wire, wire nails, wire fencing, cotton, shirts and collars, cement, cigars, raw tobacco, garden produce, canned goods, kitchen ware, brass and iron bedsteads, leather, bridges, &c.

The iron and steel section of the Canadian Manufacturers' Association had its case in a more forward state than some of the other sections. Its chief members had held a meeting in Montreal on the first of the month for the special business of preparing for the Tariff Commissioners' visit. At that meeting the following were present: F. H. Clergue, of the Lake Superior Corporation; George E. Drummond and Thomas J. Drummond, manufacturers of iron and steel, as well as selling agents; William McMaster, manager of the Montreal Rolling Mills and a director of the Dominion Iron & Steel Company, and Mr. Holeson, of the Hamilton Steel & Iron Company. When the Tariff Commission commenced its Montreal sittings on Tuesday the iron and steel men were received among the first.

Wire Duties.

J. C. McCormick, president of the Dominion Wire Company, stated that it was the sense of the industry for which he stood that item 627 of the tariff should be amended. This is one of the items of the free schedule. It includes all wire of brass, zinc, iron or steel, screwed or twisted, flattened or corrugated, for use in connection with nailing machines for the manufacture of boots and shoes. Imported solely for this use in Canadian boot and shoe factories, these varieties of wire are now free. Mr. McCormick asked that they be made dutiable at a rate of not less than 20 per cent. He maintained that a duty of the same rate (20 per cent.) is required on the following classes of wire at present embraced in item 628 of the free list: Bessemer soft drawn spring steel wire, of Nos. 10, 12 and 13 gauge, and homo steel spring wire of Nos. 11 and 12 gauge, when imported by manufacturers of wire mattresses to be used in their own factories. But the most important part of the petition he supported was that asking the imposition of a 20 per cent. duty on barb wire and galvanized wire for fencing, these being now nondutiable.

Mr. McCormick pointed out that it was not the magnitude of the business in wire for boot and shoe nailing machines and in wire for the making of mattresses that rendered a duty on them desirable. The imports of such wire are comparatively small. But its position on the free list makes a loophole through which wire of the same or similar kind, but used for other purposes, is brought in. Further, he submitted mattress wire and wire for boot nailing machines can now be made in Canada.

As to galvanized and barb wire, he urged that a 20 per cent. duty would increase the output of Canadian factories very largely. He represented that in these lines the United States manufacturers had a practical monopoly of the Canadian trade.

He expressed the satisfaction of Canadian wire manufacturers with the following existing duties: Plain brass wire, 10 per cent.; plain tinned or plated copper wire, 15 per cent.; wire of all metals and kinds not otherwise provided for, 20 per cent. Canadian wire makers, he said, were in favor of having these duties left as they are, unless the Government should decide to place a duty on wire rods, which are now free. In the event of a rod duty being adopted, an additional duty equivalent to it should be added to the rates recommended in the manufacturers' memorandum.

As the manufacturers of boots and shoes and the manufacturers of mattresses will use their influence to keep on the free list the wire they consume in their industries, and as the farmers will insist that their fencing wire be not taxed, and as the manufacturers of wire rods will call for a duty on these products unless the bounty is renewed, it would be mere guess work to speak of the chances of the wire men's petition being granted.

With the existing duty of 3-5 cent per pound on wire nails the Dominion Wire Mfg. Company, the Montreal Rolling Mills Company and the Peck Rolling Mills Company are content and ask no change except such as may be required to adjust the rates to any changes made in the rod duty.

Rolled Products.

The Montreal Rolling Mills Company and the Peck Rolling Mills Company requested that in the event of the Commission entertaining propositions for increasing the duty on pig iron and crude steel, which are raw materials used by the two Montreal companies named, the companies in question be permitted another hearing with regard to corresponding changes on iron and steel angles, bar iron and steel, steel rails, sheet iron and steel, steel plates, &c. They advocated a protective duty on galvanized iron and steel, which are now admitted at 5 per cent.

Frogs, Switches, Etc.

J. C. Wilson and K. W. Blackwell appeared for the Montreal Steel Works, to ask that an increase of duty be granted on products competing with theirs. They make switches, frogs, intersection work and like products. They pointed out that the duty on steel rails greatly enhanced the cost of production in their works, and that the coal duty was another impost that figured largely in the cost. At present the duty on switches, frogs, crossings and intersections is 30 per cent. The addition of the rail duty, it was represented, was tantamount to a reduction of the duty on frogs, &c., to 19 per cent., a rate under which it was found difficult to maintain competition against United States manufacturers. Bar iron, bolts, rivets, &c., all covered by protective duties, make up one-third of the cost, and their measure of protection still further detracts from the share left to the manufacturers of the intersection work. The company asked that the duty be advanced from its present rate to 35 per cent., maintaining that such a rate would leave the net protection not more than 20 per cent.

Steel Castings.

By the Montreal Steel Works is produced a very large proportion of the total steel castings made in Canada. The duty is 25 per cent. The company's castings are made from the product of hematite pig iron brought from the United Kingdom. The average cost of this pig iron was stated to be $20 per ton, on which the duty is 12 per cent. After making further deductions for the coal duty Mr. Wilson showed that the net tariff on steel castings does not exceed 6 per cent. He asked that the tariff rate be raised to 35 per cent.

Tubing.

Tubing consumers asked for a change in the duty on seamless steel tubing. At present steel tubing is entered at the same rate and classification as iron pipe. With the special rulings provided for boiler and bicycle tubes there are five different rates: Boiler tubes, 5 per cent.; bicycle tubes, 10 per cent.; tubes, over 2 inches in diameter, 15 per cent.; tubes, not over 2 inches in diameter, 35 per cent.; square tubes, $7 per ton. The first two rates were approved by the petitioners, but objection was taken to the second two. It was argued that the two varieties —tubes exceeding 2 inches in diameter and tubes not exceeding 2 inches—could not be classed with iron pipe. For one reason, steel tubing is of much higher price than iron pipe. For another, outside of boiler purposes, steel tubing is not used, as iron pipe is, to conduct liquids or gases, but is employed almost entirely in mechanical applications, as in the making of bushings, collars, roller bearings, &c. In the third place, tubing is always sold by outside measurement, whereas iron pipe is designated

by its inside diameter. It there fore appeared to the petitioners to be inequitable to apply a duty of 35 per cent. on account of an internal measurement of 2 inches or less while the outside diameter might be 3½ or 4 inches. Owing to this duty arrangement the larger and more expensive tubing can be laid down for less money than the smaller one. It was represented as a hardship that manufacturers using steel tubing as material should have to pay 35 per cent. duty upon it, seeing that seamless tubing is not made in Canada, and in the opinion of these petitioners is not likely to be made in Canada for many years. The injustice appeared to the petitioners the greater because some of the products into which seamless tubing enters are on the free list. It was accordingly requested that the tubing duties be as follows: Boiler tubes, 5 per cent., as heretofore; bicycle tubes, 10 per cent., as heretofore; mechanical tubing, 10 per cent.

Cartridges.

H. B. Brainard, representing the Canadian Cartridge Company, asked for protection against English competition. From 75 to 90 per cent. of the paper shot shell trade of Canada, he said, has fallen into English hands. Owing to the English system of making special goods for large customers, many remains of contracts that cannot be disposed of at home are exported to Canada and sold at any obtainable price. The method by which the anti-dumping duty is evaded is the mixing of brands and the billing of the shipments as job lots, thus rendering comparison with standards difficult. He asked that the present duty of 30 per cent. on shell gun cartridges—which is reduced to 20 per cent. by the preference to Britain—be changed to the following specific rates: $2 per 1000 on empty paper shells, $6 per 1000 on paper shells loaded with black powder, $7 on paper shells loaded with smokeless powder. C. A. C. J.

At Toronto November 13 a hearing was given to farmers. One witness told the Commission that all agricultural implements imported into Canada were from the United States, and he promised that there would be a vigorous outcry from the farmers all over the Dominion if there were an increase in the duties on American agricultural implements or on barb and galvanized wire in the interests of the wire plants at Montreal. Only 300 men were at work there, he declared, and all the Canadian farmers should not be taxed in the interests of the Montreal wire manufacturing companies.

The Purchase of Virginia Iron Ore Lands.—The Virginia Iron, Coal & Coke Company and the Lowmoor Iron Company have added an extensive acreage to their iron ore holdings recently. The deals involve the lease of 50,000 acres of iron ore property in Potts Creek Valley, the land acquired by the Virginia Iron, Coal & Coke Company being about 25,000 acres in the southern portion of the tract, while the Lowmoor Iron Company gets about an equal amount of ore lands in the northern portion. We are advised that the Virginia company will not actively develop its property at once, but will do so within the next year or two. The ore is largely a brown hematite and the deposit is considered an extensive one, though, as is the case with other iron property in Virginia, there has never been such a thorough testing with drill holes as would give data for a close approximation of the amount of ore. The Chesapeake & Ohio Railroad will make the extensions necessary to reach the ores in the Lowmoor Iron Company's portion of the tract. It will build a line from Covington, Va., 30 miles into Potts Creek Valley, making a junction with the Norfolk & Western. The latter road will run a line 45 miles long in the new ore field from a point on its New River branch, near the mouth of Stony Creek, having bought the Stony Creek road.

The steel steamer Pendennis White, built at the yards of the American Shipbuilding Company, Cleveland, for Mitchell & Co., Buffalo, was launched November 11. The vessel is 436 feet long, 50 feet beam and 28 feet deep, a duplicate of 10 other steel ships in the Mitchell fleet, and is designed to carry about 7000 tons of iron ore.

Our Consular Service.

The character of our consular service has greatly improved as compared with what it was at one time. Much more care is being taken in the appointments made to positions representing this country abroad and fitness rather than political backing is fast becoming the prerequisite for such positions. Nevertheless, it must be conceded that there is still great room for improvement, as shown by criticisms emanating from those of our citizens who have come in contact with some of our consuls while abroad. Very practical suggestions are made on this subject by Congressman William H. Wiley, of the Eighth New Jersey District, in a communication to the New York *Tribune*, which appeared in the issue of that paper for November 1, and is in part as follows:

"Every American who has been in foreign countries and observed commercial matters must have been impressed with the attention the consuls of other nations give to questions affecting their interests, and also if he comes in personal contact with them, how carefully they seem to have been trained for their work. If he investigates further he will find many of them have been for years holding various positions in the consular service and have been promoted for merit. If he pursues the same investigation in the case of our own representatives he will find in most cases that the reverse is true. It is for the purpose of calling attention to these matters which are of such grave import to our nation this article is written, in the hope of agitating the question and thus leading to some remedy adequate to change these conditions, and add to the efficiency of our consular service.

"The writer has been to Europe frequently, and this last year visited some eight foreign countries, saw the consuls and talked with several American ambassadors. One instance will suffice to show the above statements as to consuls are not simply personal opinions. Two of us being anxious to obtain some statistics as to the consumption of ferromanganese, went to an American consul-general and were told without a blush on the face of our informant that he had not these statistics, but we could get them at the German consul's; and we had to conceal our blushes and ask a favor of that gentleman, who gave us the desired information quite cheerfully.

"It would seem that our consuls should be trained especially for their duties, and should at least have the command of more than one language. They should also be familiar with international law, with questions of political economy and thoroughly equipped for their work. This is really a matter of several years' training, and demands a college of diplomacy on lines similar to those of the war college. No one should be appointed to even a subordinate position until he has either the degree from this institution or has passed its examination. Then he should be promoted as he shows capacity and fidelity.

"The consular pay should be such as to enable the recipient to live properly and respectably. At present this service is most inadequately paid, and the result is competent men refuse to take the place very often, and we find rich men's sons, or their poor relatives, occupying positions demanding great ability.

"Now this article must not be construed as a wholesale condemnation of our consular service. We have in many places most competent men, and some who have been in the service for years. The writer stayed ten days with one of these. He has been in the consular service fourteen years and speaks four languages fluently, but this is a rare case, and in his very district was a subconsul who could hardly talk English. In one instance the consular agent, who was found after two hours' hard work, could neither speak nor understand English, and only spoke his native tongue. I am glad to say we are better represented there since my visit.

"Our consuls, in addition to obtaining information of use to business men of this nation, not infrequently represent it on official occasions and our country is judged by the impression they produce on the foreigner; and this brings up another question. Our consuls should all wear a uniform varying with the grade they represent. It should be unostentatious, but should be distinctive, and

worn on diplomatic occasions. Even our distinguished ambassadors have been taken for attendants because of severe black dress suits.

"The President and the State Department should have absolute control over the appointment or removal of all consuls, and over their promotion. As well expect an army to be officered by politicians and its affairs conducted by them as to have this great army of diplomats thus conducted. Many an occasion may arise where tact and diplomacy may prevent the need of invoking the army or navy.

"As to the question of our ambassadors, they must of necessity be appointed by the President, on the same lines in which he selects his Cabinet; but when it comes to the question of their residences abroad it is a burning shame that the United States does not own, in every country where there is a minister, its own residence, which he should occupy. Other nations do this, and the result of the matter is that their ambassadors are housed in a manner worthy of the nation and the effect produced on the nation to which the ambassador is accredited is correspondingly impressive."

Since the publication of the above communication an executive order has been issued at Washington which sets forth two important steps toward the improvement of our consular and diplomatic service. Hereafter all candidates for appointment in the consular service, except for those posts which pay less than $1,000 a year, must take examinations conducted by a board of three persons appointed by the Secretary of State. This regulation is designed to place the service on a standard of efficiency rather than of politics. It is further announced that no one can become secretary of legation or under secretary who cannot speak at least one language in addition to English. It is understood that the purpose of this order is to make in the service an opening for diplomatic careers.

New Publications.

Government Regulation of Railway Rates. By Hugo Richard Meyer. 12mo, 486 pages. Price, $1.50 net. Published by the Macmillan Company, New York.

The author, who is assistant professor of economics in the University of Chicago, says that this book presents the conclusions forced upon him by a painstaking study of the railway question extending over 12 years. He thus appears to have been rather an unwilling convert to the position he now takes, his first inquiry into the subject having been undertaken with a strong bias in favor of State intervention in industry. He first took up the results of State control in Australia, and then, by way of comparison, studied the railway systems of other countries, where some measure of Government control was exercised. He believes he has found such overwhelming proofs of the evils of State direction or interference that he strongly asserts the unwisdom of Government regulation of railroads or railroad rates. Mr. Meyer appeared before the Senate Committee on Interstate Commerce in May, 1905, and there presented facts gathered in his studies abroad. This ground is covered in the first half of his book, which goes into the workings of Government regulation in countries like Prussia and Australia, which have adopted State ownership, and in those countries like France in which Government interference is limited to control and regulation of rates. Professor Meyer explains that a principal reason for the assumption of railway ownership by the Prussian Government was the complaint of discrimination in favor of competitive points. The author says, however, that conflicts between various producing centers over the question of rates have brought the railroad rates into politics in Germany, and concessions in rates have been granted to political powerful sections of the country in return for their support of important legislative measurement.

Discussing the question of grain rates in Germany, which becomes peculiarly instructive to the United States in view of the importance of grain as a factor in our freight tonnage, Professor Meyer shows that in Germany it is possible to ship grain economically by rail only 125 miles, all heavy and bulky freight being largely transported by water. The fixing of rates on a distance basis, as is the case with all Government made rates, precludes a long rail haul on bulky materials. Professor Meyer argues that for the Interstate Commerce Commission to exercise the authority to fix rates would hamper trade and work great hardship upon all producing sections which must depend on distant markets for prosperity.

Concerning the policy of the Interstate Commerce Commission in condemning higher local than through rates in railroad traffic, even in cases where it was shown that the low rates were indirectly of benefit to local points by enabling the railroad to maintain its line efficiently, as it could not do if dependent solely upon local traffic, Professor Meyer says:

> The Interstate Commerce Commission thus condemned as monstrous the railway rate practice that would be ideal; for the ideal system would relieve every city from every disadvantage in the markets of other cities, and would deprive all cities or places of production of all advantages resulting from their location. The sole reason why man uses the railway is that it is the most effective agency at his command for the annihilation of space and distance, and it is to be hoped that in the course of time the railway or some other means of transportation shall become so efficient as actually to annihilate distance. The one thing that distinguishes the American railway managers from the railway managers of the rest of the world is the success with which they have relieved cities or places of production of disadvantages resulting from their location. Before the American railway managers had put off their swaddling clothes they had learned to make their charges all but exclusively upon "commercial" considerations, and with complete disregard of relative costs of transportation. By that means they produced a degree of competition between rival producing and distributing centers not even distantly approached in other countries, "made the United States one in their business enterprises and a unit in their business activities," and produced wonderful results in the utilization of the resources of the United States.
>
> With utter disregard of these facts, the Interstate Commerce Commission proposed to adjust rates upon the absolutely wooden principle of the respective costs of handling different kinds of traffic. . . . The "yardstick" method of adjusting railway rates would break up the country into innumerable small areas, each one of which would be more isolated from the others, as well as more jealous of the others, than were the American colonies when they were erecting customs barriers against one another, "mutually oppressing each other's industries."

While many who read the book will not agree with all the conclusions of the author, Professor Meyer has undeniably made an important contribution to the study of the most complex problem now before our legislators. What is needed in the discussion that will soon be uppermost at Washington is a full presentation of facts, and the studies of the author and his presentation of the subject are entitled to the most careful consideration.

A New Iron Mine Opened in New Jersey.—F. A. Thomas & Co., Newark, N. J., have purchased the King iron mines located at Ledgewood, N. J., the price paid being above $100,000. This mine is said to be one of the best in New Jersey, and has been worked about twelve years. The ore runs from 55 to 68 per cent. in metallic iron and very low in phosphorus, thus being suitable for steel making. There is a slope down about 160 feet with a tunnel running in on a level 120 feet. The vein is 22 feet wide by 25 feet high. The purchasers are spending about $10,000 in new machinery and will be working 200 men, on or before December 15, and will mine and ship from 400 to 600 tons daily. A separator will be put up in the Spring. The shipping facilities are very advantageous, being adjacent to both the Central Railroad of New Jersey at Ledgewood and the Delaware, Lackawanna & Western Railroad at Mount Arlington.

The total shipments of the German Steel Syndicate for the period from April 1 to September 30 of what are known as A products amounted to 2,663,739 metric tons. Of this quantity billets and intermediate products amounted to 966,060 tons; rails and track material, 794,047 tons, and shapes, 903,632 tons.

EXTRAORDINARY RECORD BREAKING.

What achievements American works managers are capable of under the stimulus of demands for their product is splendidly illustrated by the extraordinary record breaking during October by every subsidiary company of the United States Steel Corporation.

During October the manufacturing plants of the corporation made 165 new monthly tonnage records, as follows:

Carnegie Steel Company	78
Illinois Steel Company	18
National Tube Company	34
American Steel & Wire Company	24
American Sheet & Tin Plate Company	2
American Bridge Company	9
Total	165

During the month of October, 1905, the corporation broke all records for steel ingots and furnace product:

	Best previous.	Gross tons.	October. Gross tons.	Gain. Gross tons.
Steel ingots	March, 1905,	1,078,315	1,172,951	94,636
Furnace products	May, 1905,	900,777	950,752	49,975

The Carnegie Steel Company takes the lead with some extraordinary achievements, the most notable records being the following:

CARNEGIE STEEL COMPANY.

	Best previous.	Best previous. Gross tons.	October. Gross tons.	Gain. Gross tons.
Total furnace products	March, '05	575,495	588,258	12,763
Total ingots	March, '05	663,667	752,387	88,720
Blast Furnaces:				
Edgar Thomson, Furnace B	May, '05	12,030	12,664	634
Edgar Thomson, Furnace H	Mch, '04	15,269	15,751	482
Edgar Thomson, total furnaces	Aug., '05	134,847	143,386	8,539
Clairton, total furnaces	April, '05	38,858	39,600	742
Donora, total furnaces	Sept., '05	25,634	26,329	695
New Castle, Furnace No. 2	Sept., '05	14,972	15,255	283
New Castle, total furnaces	Sept., '05	57,737	59,359	1,622
Bellaire, Furnace No. 2	Nov., '02	11,201	11,435	234
So. Sharon, Furnace No. 2	Nov., '04	10,905	11,168	263
No. Sharon, Furnace No. 1	May, '05	8,213	8,236	23
Niles, Furnace No. 1	May, '03	9,117	10,004	887
STEEL WORKS, ROLLING MILLS, &C.:				
Edgar Thomson:				
Converting department	Oct., '03	88,069	102,740	14,671
Blooming mill	Oct., '03	76,520	89,508	12,988
Rail mills	Oct., '03	70,444	83,480	13,036
Foundry, iron	May, '05	11,314	11,516	202
Foundry, brass	Aug., '05	158	183	25
Foundry, total production	May, '05	12,650	12,830	180
Duquesne Steel Works:				
Converting department	Mch., '05	60,000	60,644	644
Open hearth department	Jan., '05	45,720	46,230	510
40-inch mill	Jan., '05	34,247	35,385	1,138
14-inch mill	Sept., '05	17,353	22,872	5,519
10-inch mill, No. 1	April, '05	7,330	7,821	491
Splice bar shop	June, '03	8,321	8,402	81
8-inch mill	Sept., '05	734	1,092	358
Upper Union Mills, Pittsburgh:				
Plate mill No. 1	Oct., '01	5,965	6,208	243
Bolts and rivets	Sept., '03	54	59	5
Lower Union Mills, Pittsburgh:				
9-inch mill	Jan., '03	1,203	1,260	57
12-inch mill	May, '05	2,873	2,914	41
72-inch plate mill	Mch., '03	5,189	5,345	156
Homestead Steel Works:				
33-inch finishing	Mch., '05	10,052	11,503	1,451
32-inch mill	Mch., '05	28,516	30,468	1,952
48-inch mill	Mch., '03	16,408	17,204	796
84-inch mill	Sept., '05	8,537	10,330	1,793
Armor plate, Krupp	Nov., '04	871	954	83
Clairton Steel Works:				
Open hearth department (12 furnaces)	Sept., '05	42,736	49,257	6,521
40-inch mill	Mch., '05	38,228	40,414	2,186
18-inch mill	Sept., '05	2,754	5,013	2,259
Donora Steel Works:				
Open hearth department	Aug., '05	36,520	41,455	4,935
Blooming mill	Aug., '05	27,290	32,844	5,554
Ohio Steel Works:				
Converting department	Oct., '02	66,378	71,917	5,539
Blooming mill	Mch., '05	60,480	65,848	5,368
Rail and billet mill	Mch., '05	57,504	61,331	3,827
Continuous billet	Mch., '05	23,918	24,235	317
New Castle Steel Works:				
Converting department	Sept., '05	57,566	60,022	2,456
Blooming mill	Sept., '05	52,910	54,697	1,787
24-inch mill	Sept., '05	50,492	52,102	1,610
Bellaire Steel Works:				
Converting department	April, '05	33,574	34,088	514
Blooming mill	Jan., '05	30,747	30,845	98
Bar and billet mill	Sept., '05	28,897	28,927	30
South Sharon Steel Works:				
Open hearth department	Jan., '05	35,405	42,823	7,418
Universal plate mill	Sept., '05	9,783	11,250	1,467
Sharon Steel Works:				
Bar and small billet	Aug., '05	11,033	11,109	76
Clark Mills:				
20-inch mill, No. 7	Mch., '03	1,765	1,869	104
Total Clark Mills	May, '05	6,253	6,355	102
Greenville Mills:				
7-inch mill, No. 3	Sept., '05	473	761	288
McCutcheon Mills:				
16-inch mill, No. 3	Aug., '05	5,532	6,253	721
Total McCutcheon	Aug., '05	8,274	9,359	1,085
Lower Union Mills (Youngstown):				
8-inch mill, No. 4	May, '05	2,337	2,869	532
8-inch mill, No. 5	Oct., '01	824	972	148
10-inch mill, No. 6	April, '03	2,112	2,330	218
Painter Mills:				
8-inch mill, No. 5	Mch., '05	793	880	87
Upper Union Mills (Youngstown):				
7-inch mill, No. 1	May, '05	960	1,190	230
8-inch mill, No. 2	Mch., '05	1,900	1,972	72
10-inch mill, No. 4	April, '05	2,754	3,824	1,070
10-inch continuous	May, '05	2,622	3,331	709
Total Upper union	May, '05	12,400	15,236	2,836

ILLINOIS STEEL COMPANY.

Joliet, Furnace No. 3	Sept., '05	13,004	13,369	365
Joliet, total pig iron	April, '04	34,120	34,855	735
North Furnace No. 2	July, '05	5,154	5,365	211
Milwaukee Furnace, No. 2	May, '04	6,318	6,337	19
South Foundry castings	May, '04	671	751	80
Open hearth rolls	Sept., '05	142	302	160
Joliet rod mill No. 3	Aug., '03	4,984	4,987	3
Joliet, bolts	Aug., '05	663	672	9
Joliet, nuts	Aug., '05	229	242	13
Milwaukee No. 2, 9-inch mill	Aug., '01	2,544	2,672	128
Milwaukee 21-inch mill	Nov., '04	4,526	4,677	151
Milwaukee, total product	May, '05	21,144	21,451	307
North, total structural	May, '05	4,940	5,385	445
Cement works, South, No. 3	Sept., '05	*130,000	*140,000	*10,000

* Barrels.

AMERICAN STEEL & WIRE COMPANY.

Edith Furnaces	Dec., '02	13,381	13,764	383
Emma Furnace	Sept., '05	9,084	9,484	400
Newburg Furnace	April, '04	7,184	7,194	10
Shoenberger 72-in. plate mill	Feb., '05	2,688	2,862	174
Donora No. 1 rod		9,544	11,205	1,661
Sharon No. 2 rod	Sept., '05	5,432	5,961	529
Allentown rod	Mch., '05	7,996	8,492	496
Anderson rod	Oct., '04	7,844	7,990	146

AMERICAN BRIDGE COMPANY.

Pencoyd 23-28 in. finishing	July '03	11,386	11,835	449
Pencoyd 12-inch finishing	Oct., '01	2,576	2,639	63
Toledo bolt and rivet	Sept., '05	84	107	23
Trenton bolt and rivet	Sept., '03	115	118	3
All plants, bolt and rivet	Sept., '05	1,656	1,752	96
All plants, steel foundry	Aug., '05	260	308	48
Ambridge, finished	Sept., '05	12,254	12,813	559

AMERICAN SHEET & TIN PLATE COMPANY.

Ætna standard black sheets	Mch., '05	10,400	10,893	493

NATIONAL TUBE COMPANY.

BLAST FURNACES:				
Riverside A	Sept., '04	7,190	8,704	1,514
Riverside B	May, '04	12,289	12,611	322
Total Riverside	April, '04	19,231	21,315	2,084
Lorain, Furnace D	Aug., '05	14,123	14,554	431
STEEL WORKS AND ROLLING MILLS:				
National Works:				
Converting mill	Oct., '02	30,016	30,292	276
13-inch mill	Sept., '05	3,926	4,629	703
22-inch mill	Mch., '05	4,794	4,835	41
Riverside Works:				
Converting mill	May, '05	15,799	17,676	1,877
Blooming mill	May, '05	14,275	16,190	1,915
22-inch mill, No. 1	May, '05	2,903	3,313	410
22-inch mill, No. 5	Jan., '05	2,890	3,366	476
Continental Works:				
8-inch mill	Aug., '05	772	828	56
10-inch mill	Jan., '05	1,830	1,885	55
Pig iron, all furnaces	Sept., '05	89,097	97,209	8,112
Ingots, all works	Sept., '05	95,363	103,673	8,310
PIPE MILLS:				
National Works:				
Butt weld, No. 1	May, '05	4,251	4,497	246
Butt weld, No. 5	Aug., '02	1,731	1,805	74
Lap weld, No. 1	Nov., '04	2,318	2,932	614
Lap weld, No. 2	April, '04	1,009	1,057	48
Lap weld, No. 6	Jan., '05	953	976	23
Galvanizing mill	April, '02	4,757	5,060	303

Riverside Works:				
Butt weld, No. 1	Sept., '05	1,068	1,072	4
Butt weld, No. 3	Sept., '05	1,814	1,944	130
Lorain Works:				
Lap weld, No. 3	Aug., '05	2,959	3,002	43
Continental Works:				
Butt weld, No. 1	Sept., '04	1,430	1,828	398
Pennsylvania Works:				
Lap weld, No. 2	Oct., '04	3,497	3,877	380
Lap weld, No. 4	Nov., '04	2,299	2,583	284
Socket welding	Oct., '04	769	869	100
Kewanee Works:				
Butt weld, No. 3	April, '03	1,258	1,325	67
All tube and pipe mills		32,040	33,974	1,934

It will be observed that in a good many instances the best previous records are achievements of the present year.

PERSONAL.

Graham Fraser, director of works, and J. Dix Fraser, assistant director of the Dominion Iron & Steel Company, who have just resigned, gave a farewell dinner to superintendents of departments, the office staff and several outside friends November 9 at Sydney, Nova Scotia. The local press refers to it as a brilliant success. In the course of his speech Graham Fraser referred to records of the open hearth plant, the blooming mill and the blast furnaces, and claimed for the Morgan continuous mill the world's record, with a product of 317 tons of No. 5 wire rode in 24 hours.

Robert McF. Doble, San Francisco, has severed his connection with the Abner Doble Company in order to resume his individual practice as consulting engineer.

Joseph P. Bedson, the well-known wire manufacturer of Manchester, England, sailed for home last Saturday after a six weeks' stay in this country.

Glenwood S. Buck, a newspaper man of wide experience, has been appointed manager of the advertising department of the Buck's Stove & Range Company, St. Louis, Mo.

John W. Dunn, president of the International Steam Pump Company, sailed for Europe November 8.

H. F. Crandall, superintendent of the Milwaukee works of the International Harvester Company, has resigned his position and will hereafter be connected with the J. I. Case Company, Racine, Wis., former owner of the Harvester Works. Mr. Crandall, who is an able designer, worked his way from the bench up to the position of superintendent, which position he has held for the last ten years.

James S. Church, formerly superintendent of the Milwaukee plant of the Allis-Chalmers Company and at present vice-president of the Milwaukee Boiler Company, has accepted a temporary appointment as principal of the new Milwaukee School of Trades, Milwaukee, Wis., and has taken active charge of the work of preparing for the opening of the school. It is hoped that the school will be ready to open by December 1.

S. A. Watson has been appointed manager of the Thurlow (Pa.) plant of the American Steel Foundries. He was formerly sales agent in the New York office.

R. E. Mathot of Brussels, Belgium, well known in the United States as well as in Europe for his work in the field of gas engine design, is now in the United States and will spend a few weeks in consultation work for various gas engine manufacturers.

Andrew Carnegie arrived in New York November 9 from Liverpool. On the 18th inst. the General Society of Mechanics and Tradesmen will celebrate its 120th anniversary with a complimentary banquet to Mr. Carnegie in recognition of his gift of $300,000 for the extension of the Mechanics' Institute.

Myron Phillips has been appointed superintendent of the Lower Mills of the Carnegie Steel Company at Youngstown, Ohio, succeeding Perry Edwards, who remains with the company in another capacity.

W. P. Eagan, commissioner of the National Metal Trades Association, has been granted a leave of absence by the Administrative Council and is now in Colorado for the benefit of his health. Robert Wuest, the secretary, is acting commissioner meantime. J. H. Cone, Cincinnati, has been elected assistant secretary.

OBITUARY.

GEORGE C. BAILEY, Chicago, general Western manager and secretary-treasurer of the John A. Roebling's Sons Company, died October 27, aged 62 years. Mr. Bailey was born in Lambertville, N. J., and became connected with the Roebling Company in 1881. Since 1886 he had been in charge of the Western branch of the company's business with headquarters in Chicago.

JOHN RICE of the John Rice Foundry & Machine Works, Stevens Point, Wis., died October 27, aged 68 years. He was born in Ireland and came to America when ten years old. He established the foundry and machine works at Stevens Point in 1873 and became known throughout northern Wisconsin as a builder of mill machinery.

SAMUEL WALLACE, owner of the White Haven Iron Works, White Haven, Pa., died October 31, aged 77 years. He was the pioneer foundryman in that part of Pennsylvania.

PRESCOTT F. STEVENS, for half a century a prominent business man of Concord, N. H., died October 31, aged 69 years. In 1854 he and Charles H. Dunclee engaged in business under the firm name of Stevens & Dunclee as manufacturers of and wholesale dealers in stoves and tinware. This business connection lasted almost 50 years.

JOHN L. GILL, boiler manufacturer, Philadelphia, died November 6, aged 70 years. He was born in Columbus, Ohio, and for some time was engaged in manufacturing railroad cars in that city. Later he removed to Pittsburgh and from there to Philadelphia, where he started a boiler factory. He was a member of the Franklin Institute, the Engineers' Club and the American Society of Mechanical Engineers. He is survived by a widow and five children.

C. I. BEWLEY, president of the Oregon Foundry & Machine Company, Oregon, Ill., and an inventor of some note, died November 3, aged 60 years.

DAVID MAXON GREENE, one of the best known civil engineers in the country, died November 2, at Adams, Jefferson County, N. Y. He was born in Brunswick July 8, 1832, and in 1851 graduated from the Rensselaer Polytechnic Institute of Troy. He served with distinction with the engineer corps in the Civil War. In 1878 he became director of the Rensselaer Polytechnic Institute and held the position 13 years. He leaves a widow.

GEORGE MILLS, who has been connected with the Sweets Steel Company as melter and superintendent of its open hearth steel department at Syracuse, N. Y., and at Newberry, Pa., for the past six years, died at Williamsport, Pa., November 8, 1905. He was born at Lowell, Mass., April 17, 1851. As a boy he was employed for several years in the Norway Iron Works at South Boston and later in the rolling mill at East Bridgewater, Mass. He is survived by his widow and two sons.

The Associated Foundry Foremen of Philadelphia and vicinity held their first annual meeting November 13 at Royal Arcanum Hall, Philadelphia. The present officers were unanimously re-elected. They are as follows: President, A. T. Williams, Enterprise Mfg. Company, Philadelphia; vice-president, James B. Strain, Robert Wetherill & Co., Chester, Pa.; treasurer, George M. Benkert, Williamson Brothers Company, Philadelphia; secretary, W. P. Cunningham, American Bridge Company, Pencoyd, Pa. Trustees were elected as follows: H. W. Kramer, William Adams Foundry Company, Philadelphia, for three years; Adam Pugh, Isaac A. Sheppard & Co., Philadelphia, two years; W. O. Steele, Bateman Mfg. Company, Grenloch, N. J., one year. The paper before the association at this meeting was on the subject of "Core Compounds," by J. R. Webster of the C. E. Mills Oil Company, Syracuse, N. Y., and was read by W. O. Steele. It led to considerable discussion.

NEWS OF THE WORKS.

Iron and Steel.

Within a few weeks the plant of the Western Iron Mills Company, Denver, Col., will be in operation turning out light rails, shafting and other iron and steel products from scrap. The plant, which is being constructed on the Colorado & Southern tracks, is 100 x 400 feet and will have a capacity of 150 tons a day. In addition to the scrap iron yard adjacent to the new plant the company has a yard on Third street and a large warehouse which occupies an entire block between Sixth and Seventh avenues, the railroad tracks and the Lorimer street viaduct. John S. Cary is president; Robert J. Cary, vice-president, and James T. Ritchie, secretary and treasurer.

Temple Furnace of the Temple Iron Company, near Reading, Pa., was blown in November 9.

The Embree Iron Company, Embreeville, Tenn., is making a number of improvements to its furnace which will increase the production.

The Shaw Crucible Steel Company has been organized with a capital stock of $100,000, to make tool steel from the magnetic oxide sands of the Pacific Coast. The company has after several years of experimental work developed a method whereby it can produce tool steel from the magnetic iron sands, and is now erecting a mill and installing machinery at Damons Point, North Beach, Wash. It is hoped to have the plant in operation in the early spring. S. P. Wells, of Samuel Wells & Co., Cincinnati, is president; W. J. Shaw, general manager, and John A. Ringold, room 21, Carew Building, Cincinnati, Ohio, secretary.

The South Chicago Furnace Company, South Chicago, Ill., blew out one of its furnaces in October, and but one was active on November 1.

A second Sheffield furnace at Sheffield, Ala., was put in blast on October 25.

Marshall Furnace of the Juniata Furnace & Foundry Company, Newport, Pa., blew in on October 26.

The E. & G. Brooke Iron Company, Birdsboro, Pa., blew out its larger furnace on October 12, and had but one stack in operation on November 1.

The Dover Forge & Iron Company, Canal Dover, Ohio, produced 510 gross tons of charcoal iron blooms on six knobbling fires during the month of October, being more than double what was formerly considered a month's work from the same number of fires. All of the material was used in making charcoal iron skelp for boiler tubes.

The Carnegie Steel Company has taken over Steubenville Furnace, at Steubenville, Ohio, formerly operated by the National Tube Company. The stack is idle at present, but is expected to start up in the latter part of this month.

The Wheeling Steel & Iron Company, Wheeling, W. Va., is adding a new butt weld furnace to its tube plant, and will also build some new gas producers.

The plant of the Combination Steel Company, at Chester, Pa., is to be operated by the Duplex Metals Company, New York, which has just been incorporated with a capital stock of $3,000,000. The company is now overhauling the plant getting it into shape for the manufacture of steel specialties. Byron E. Eldred of New York is at the head of the enterprise.

The Superior Court of Pennsylvania has recently decided that the United States Steel Corporation is the rightful owner of a narrow strip of land fronting on the Monongahela River in Washington County, Pa., and opposite Monessen, where the large plant of the Pittsburgh Steel Company is located. The ownership of this property gives the United States Steel Corporation an approach for a bridge to the Monessen mills of the Pittsburgh Steel Company, which it intends to erect for the purpose of allowing the Union Railroad to deliver billets over its own lines to the Monessen mills.

The Keystone Steel Company has been organized with a capital of $200,000, and it is said will build a plant at Sebring, Ohio, where edge tools will be made by a process invented by Richard Jones of Pittsburgh. A site has been donated the company as a bonus.

Rebecca Furnace of the Kittanning Iron & Steel Mfg. Company, Kittanning, Pa., which has been out for a short time, will resume in the coming week.

General Machinery.

The Northern Electrical Mfg. Company, Madison, Wis., has received an order from the Kansas City Portland Cement Company for ten 15 horse-power variable speed motors for operating the cement roasters at its new cement plant. This is the second order the Northern Company has received in the last six months from the Kansas City Portland Cement Company for variable speed motor drives.

The Northwestern Steel & Iron Works has been incorporated at Eau Claire, Wis., with a capital stock of $50,000, and Peter J. Holm, Kim Rosholt and Herbert E. Bosworth, incorporators.

The contract for 34 electric traveling cranes for the Allis-Chalmers' West Allis shops has been awarded to Pawling & Harnischfeger, Milwaukee, Wis. This order completes a total of 106 cranes made by the firm and used at the several plants of the Allis-Chalmers Company. Pawling & Harnischfeger have recently made extensions to their new shops to facilitate the handling of the large amount of crane business.

The Robins Conveying Belt Company, New York, has just closed a contract with Bartlett, Hayward & Co., Baltimore, Md., for belt conveyors intended for the retort house of the Astoria Light, Heat & Power Company. Among other work this company now has on hand is the manufacture of belt conveyors and elevators for the Burnham Coal Company, Boston, Mass., and belt conveyors for the United States Smelting Company, Salt Lake City.

The St. Lawrence Supply Company, Limited, Montreal, Canada, whose plant was recently destroyed by fire, will rebuild, making considerable enlargement with the view of going more thoroughly into the manufacture of different lines of contractors' machinery.

The Alexander Dunbar & Sons Company, Limited, Woodstock, New Brunswick, Canada, has been incorporated with a capital stock of $75,000 to acquire and carry on the business of Alexander Dunbar & Sons, iron and brass founders, mill and general engineers and machinists. The directors are Alexander Dunbar, Sr., Alexander Dunbar, Jr., and Andrew Dunbar.

The Bucyrus Company, South Milwaukee, Wis., states that it is building 61 steam shovels, three railroad wrecking cranes and one railroad pile driver for work at Panama. Thirty-two of the shovels are 95-ton machines, 28 are 70-ton and 1 is a 45-ton machine.

The Cain-Martin Machine Company, Louisville, Ky., has incorporated. George E. Cain is president; W. R. Martin, manager, and Richard J. Schuhmann, secretary and treasurer. A plant has been established at 1111 West Main street fully equipped for the repairing and erecting of all kinds of machinery.

The American Machine Works, Seattle, Wash., is successor by purchase to the American Engineering Works and has incorporated with a capital stock of $5000. The company builds saw mill, marine and other machinery and gasoline engines. The officers are C. E. Bergman, president and treasurer; Chas. E. Erickson, secretary and manager.

The Chicago Machinery Mfg. Company, Chicago, has incorporated under the laws of Illinois with a capital stock of $10,000. The purpose of the company is to do work in the general machinist's line, designing, building and erecting such special tools or machinery as are used by machinists. At present a specialty is being made of mold work and transmission machinery. Some orders have also been received for special turret lathes and new patent bolt cutters. The company is located at 196-198 South Desplaines street, and its officers are G. A. Hancock, president; M. S. Prenatt, secretary and treasurer; H. A. Cumfer, vice-president and manager.

The Pratt Construction Company has been incorporated at Decatur, Ill., with $25,000 and will erect a plant for manufacturing machines for extracting oil from cotton and other seeds.

The C. H. Cowdrey Machine Works, Fitchburg, Mass., manufacturers of special machinery, will build a brick shop, 50 x 98 feet, two stories and basement. The company will not be in the market for new machinery, as it has all the equipment that will be needed at present.

The Erie Railroad has let contract for the construction of its new machine shop at Avon, N. J. The building will be 50 x 100 feet.

The Brooklyn Rapid Transit Company, Brooklyn, N. Y., has placed a large order for motors with the Westinghouse Electric and Mfg. Company. This is the third order of the kind given to the Westinghouse Company and calls for 300 50 horse-power motors and 150 controllers.

The Helwig self feeding tube expander, with alarm attachment, manufactured by the Helwig Mfg. Company, St. Paul, Minn., is stated to be meeting with much favor among the trade. It does away with the sectional expander as well as its cost and the labor to operate it, and indicates when the flue is sufficiently rolled.

The Youngstown Engineering Company, Youngstown, Ohio, has secured contracts for considerable machinery to be installed in the new Bessemer steel plant being erected by the Youngstown Sheet & Tube Company, at Youngstown, Ohio.

Power Plant Equipment.

The De La Vergne Machine Company, New York, which recently completed its contract for 40,000 horse-power of Koerting two-cycle double acting gas engines, of which 32,000 horse-power is employed for driving blowing engines and 8000 horse-power for driving direct current and polyphase alternating current generators, has recently been given a contract for three 500 horse-power Koerting gas engines, to be direct connected to 325-kw., 550-volt direct current Crocker-Wheeler generators, for the Boston Elevated Company. These engines will be put in operation about January 1.

Sealed proposals will be received by the city of Chicago until November 16 for furnishing superheater equipment for four water tube boilers.

The Page Boiler Company, 14-18 Larrabee street, Chicago, has incorporated with a capital stock of $6000, to make steam boilers, tanks and smokestacks. M. E. Page, Jr., is president and manager, and John J. Johanson is vice-president and super-

intendent. The company is about to contract for buildings and equipment for an up to date boiler shop.

The Board of Public Works of Grand Rapids, Mich., has purchased a 105-kw. generator and a 14 x 15 inch automatic Skinner engine from the Fort Wayne Electric Works, Fort Wayne, Ind. The contract price, $3554, included switchboard and appurtenances and two 20-kw. and one 7½-kw. transformers.

Bonds have been issued by the city of Bellefontaine, Ohio, to the amount of $50,000, to pay for an electric light plant to be built the coming winter.

The directors of the Toledo Railway & Light Company of Toledo, Ohio, have decided to make important additions to their central lighting and railway power station. A new building will be erected, in which will be installed steam, electrical and boiler equipment, which will add about 6000 horse-power to the capacity of the plant. This is made necessary by the building of several new street railway lines in that city. J. T. Ross is chief engineer of the company.

John E. T. Nicks, Nasby Building, Toledo, Ohio, has been awarded a contract for installing a power plant at the factory of the Toledo Metal Wheel Company, that city. Engines, boilers and generators of considerable capacity will be installed and all machinery will be driven by motors on the group plan.

J. F. Davies, Toledo, Ohio, has been awarded a contract for improvements to the municipal lighting plant at Crawfordsville. He will install new power equipment, boilers, piping and two steel stacks.

The New York business of Fairbanks, Morse & Co. has been incorporated with a capital stock of $50,000.

Foundries.

The Jones & Laughlin Steel Company, Pittsburgh, has leased the plant of the Fischer Foundry & Machine Company, on the South Side in that city, and will operate it. This gives the Jones & Laughlin Steel Company three foundries, and the one just leased will be known as No. 3. The Fischer Foundry & Machine Company about a year ago built a large new foundry at Ford City, Pa., and its entire business will now be concentrated in that plant.

The Lattimer-Williams Mfg. Company, Columbus, Ohio, manufacturer of stoves and ranges, is having plans prepared for an addition to its foundry, new cleaning room, wareroom and storage building.

The Capitol Foundry Company has been organized to take over the iron foundry business of the Standard Foundry Company, at Parkville, Hartford, Conn. The Standard Company will continue its brass foundry. The capital stock of the new company is $30,000, and the officers are: President and general manager, Fred. W. Stickle; vice-president, Arthur A. Tanner; treasurer, Frank H. Wilmot, and secretary, William B. Judd. All are residents of Waterbury, where Mr. Stickle was connected with the Manufacturers' Foundry Company. The company will make a specialty of cylinder castings for gas engines.

The city of Portland, Ore., will receive bids until November 27 for furnishing 4195 tons of cast iron water pipe, ranging in sizes from 16 to 24 inches.

The Hetherington & Berner Company, Indianapolis, Ind., has bought a tract of 3½ acres at Kentucky avenue and White River, on which it will build a new foundry. The shops will have a frontage of about 500 feet on Kentucky avenue and the same distance on McCarty street. Plans are now being prepared. The new location will give excellent railway shipping facilities. The company was established in 1867 and has been at its present location since 1873.

The Ross-Mehan Foundry Company is making extensive improvements in its malleable plant at Chattanooga, with a view to increasing its capacity. A building 65 x 100 feet will be added. This is the second time within the year that the company has made additions. Besides the manufacture of car couplers, church and school bells, brake shoes, &c., the company also makes a large number of cannons used by the Government as markers in the various parks and cemeteries kept by the nation.

Bridges and Buildings.

The National Bridge Works, Long Island City, New York, has increased its capital stock from $70,000 to $100,000, to take care of its increased business.

Plans are under way looking to a consolidation of the interests of the West Virginia Bridge & Construction Company, Wheeling, W. Va., and the New Jersey Bridge Company, Manasquan, N. J., under the title of the New Jersey & West Virginia Bridge Company, the capital of the consolidated concern to be $500,000.

A large steel frame building will be erected at Economy, Pa., for the National Metal Moulding Company. The contract has been awarded to Wm. B. Scaife & Sons Company, Pittsburgh, Pa.

Fires.

The machine shops of the Chapman Iron, Coal & Coke Company, Goshen, Va., were destroyed by fire last week. The loss is about $25,000.

The power house of the San José Railroad Company, San José, Cal., was burned last week.

The wheel department of the Dixson Car Wheel Company, Houston, Texas, was recently destroyed by fire. The loss is placed at $20,000.

The plant of the British Columbia Wire & Nail Company, Vancouver, B. C., was recently destroyed by fire, the loss amounting to about $100,000. It is understood that the plant will be rebuilt.

The foundry of the Wenzelmann Mfg. Company, Galesburg, Ill., was recently destroyed by fire.

Hardware.

Plans have been completed and estimates are being received for an addition to the factory of the West Haven Mfg. Company, West Haven, Conn., with New York office at 155 Chambers street. The addition will be of brick, 24 x 60 feet, two stories, including a fire proof vault two stories high. The roofing will be of gravel. The company manufactures hack saw blades, power hack saws, &c.

Robert Murphy & Sons, manufacturers of cutlery, Harvard, Mass., are to erect a new factory at Ayer, Mass. The building will be 35 x 155 feet, one story, with monitor roof.

The Champion Weather Strip & Parting Bead Company, 179 Summer street, Boston, has been incorporated with capital stock of $10,000, to manufacture the Champion weather strip. The officers are: President and treasurer, C. H. Faulkner; clerk, W. S. Hutchinson; directors, Messrs. Faulkner and Hutchinson and M. C. Haynes and P. C. Simons.

The Indiana Anchor Fence Company, South Bend, Ind., manufacturer of gates, fencing and fence clamps, has just completed the erection of a new building, 64 x 128 feet, and has removed its machinery from the old plant to the new location, where the facilities for manufacturing are much better than in the smaller quarters. A wire fence of a new design will be placed on the market by the company in the near future.

The Warner Fence Company, Ottawa, Kan., has started its factory for the winter campaign, turning out barb wire, hog and poultry fence of various styles and ornamental fence and gates. The company recently placed an order for 1000 tons of wire and reports business secured for a considerable time in the future.

Miscellaneous.

The Atlantic Automobile Company & Machine Works, recently incorporated with a capital stock of $50,000, has purchased the garage and machine shop of the Currie Automobile Company, Atlantic City, N. J., and will carry a full line of the best makes of automobiles and do repair work. Lewis H. Hoopes is president; Frank A. Broadhead, secretary and treasurer, and Clarence L. Cole, solicitor.

The Thrasher Clock Company, which is to locate at Manchester, Conn., has completed its organization by the election of the following officers: S. P. Thrasher, president; C. E. Norten, secretary, and J. T. Robertson, treasurer.

The Pittsburgh Filter Mfg. Company, Pittsburgh, has been awarded a contract by the Board of Public Works of Lorain, Ohio, for the installing of a filteration plant to purify 6,000,000 gallons of water per day. The plant is to be completed within four months and will cost $40,000.

The Andrews Automatic Clutch Company, Akron, Ohio, has been formed by Will Christy, C. C. Goodrich, C. B. Raymond and E. E. Andrews. The company will manufacture electric automatic clutches.

The Standard Metallic Vault & Casket Company, Cleveland, Ohio, has purchased the factory building at Toledo formerly occupied by the Kirk Mfg. Company. The company is capitalized at $750,000 and is headed by John Ripson, J. C. Hennis, R. S. Rogers and J. J. Weber of Cleveland. The plant will be equipped for the manufacture of sheet metal vaults and caskets.

G. C. Webster and Isaac Price of Warren, Ohio, have purchased the plant and business of the Denison Mfg. Company of that city and will continue the manufacture of metal novelties. Mr. Price, who was formerly with the Sterling Electric Company of Warren, will be manager and superintendent of the company, and it is probable that some new electrical specialties will be included in the line later on.

Last week William A. Hawgood and Arthur H. Hawgood of Cleveland, who own a large fleet of steel vessels, placed a contract with the American Shipbuilding Company of that city for a modern steamer to cost $415,000, for delivery June 15, 1906. The boat will be 552 feet over all, 56 feet beam and 32 feet deep, and will have a capacity of 10,500 gross tons. This makes 21 vessels of over 500 feet which this company has under contract for next season's delivery. The American Shipbuilding Company has also closed contracts for two steel package freight carriers for the Rutland Transit Company. The boats are to be of Welland Canal size, for lake and ocean trade. They will be 256 feet long, 46 feet beam and 26½ feet deep. They will have quadruple expansion engine and two Scotch boilers.

The Windsor Motor Car Company has been organized at Evansville, Ind., to manufacture automobiles. The officers are: President, J. C. Zutt, Evansville; vice-president and general manager, J. A. Windsor, Jr., Chicago; secretary-treasurer, Wm. M. Copeland, Chicago.

The Iron and Metal Trades

There continues to pour in from all quarters evidence of the enormous current consumption of Iron and Steel, with ample proof in the form of fresh orders that there will be an unabated strain upon our productive facilities for many months to come.

There is no truth in the report given wide currency that the Steel Corporation had purchased 50,000 tons of Bessemer Pig for the first quarter from the Valley furnaces. It is understood that negotiations are pending, however.

During the past week the Pig Iron markets have hardened further. As much as $17.50 has been paid for a lot of 3000 tons of Bessemer to a Valley furnace to go to an Ohio River Steel plant. The demand from Steel makers has made Malleable Bessemer very scarce and the foundries which need this grade are facing a troublesome situation. Some business has been done in eastern Pennsylvania in Basic Pig at $17.50 delivered, and it looks as though there may be a shortage during the winter. A Western Steel plant has bought 14,000 tons of Basic Pig, of which 6000 tons went to Southern producers and the balance to Northern furnaces.

It is understood that early last week the Cast Iron Pipe interests purchased 20,000 tons of Pig Iron and that further considerable quantities are wanted, although buyers seem to shy at present prices. So far as Southern makers are concerned, the largest are demanding $14.50 for No. 2 at Birmingham, but there is still Standard Iron available at $14. The Lake Superior Charcoal producers have put up prices $1 per ton to $18 at furnace.

Contracts for Steel Rails closed during the week foot up a tonnage in excess of 100,000 tons. This includes 25,000 tons for the Boston & Maine, 25,000 tons additional for the Harriman lines, making the total for that interest close to 170,000 tons, 12,500 tons for the Minneapolis, St. Paul & Sault Ste. Marie, 10,000 tons for the Pacific & Idaho Northern and 9000 tons for the Yosemite Valley.

The report that a Spanish mill had captured business on the Pacific Coast is denied. It probably grew out of the fact that three months ago the Altos Hornos de Viscaya, of Bilbao, did take a contract for 11,000 tons of Steel Rails for shipment to Mexico.

The Plate mills are swamped with orders, among the latest being the material for an additional Lake boat, captured by Chicago. It is possible that prices will be moderately advanced this week.

The pressure for Structural Material continues unabated, but the new tonnage being placed is moderate. Among the business coming up is 8000 tons for an extension of the Northwestern Elevated in Chicago.

In Castings a very big order has just been awarded by the builders of the McAdoo Tunnel. The quantity involved is about 40,000 tons, which is a little over one-half of the requirements.

Bids for 7800 tons of Cast Iron Pipe were opened in this city this week, but the contract is not yet awarded. Next week is to bring the letting of 30,000 tons for this city and of 7000 tons for Providence.

The troubles in Russia have had a sharp effect upon the price of Ferromanganese, which has been jumping lately. The usual supply of high grade low phosphorus ores from the south of Russia, which has been hampered for some time past, is now seriously threatened.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Nov.15, 1905.	Nov.8, 1905.	Oct.18, 1905.	Nov. 16, 1904.
PIG IRON:				
Foundry No. 2 Standard, Philadelphia	**$18.00**	$18.00	$17.25	$16.25
Foundry No. 2 Southern, Cincinnati	**16.75**	16.50	15.25	15.25
Foundry No. 2, Local, Chicago	**19.00**	18.25	17.50	16.00
Bessemer, Pittsburgh	**17.85**	17.85	16.60	15.35
Gray Forge, Pittsburgh	**16.60**	16.35	15.85	14.35
Lake Superior Charcoal, Chicago	**19.50**	18.50	18.50	16.50
BILLETS, RAILS, &c.:				
Bessemer Billets, Pittsburgh	26.00	26.00	26.00	21.00
Forging Billets, Pittsburgh	**30.00**	30.00	29.00	23.50
Open Hearth Billets, Philadelphia	**29.50**	30.00	28.50	....
Wire Rods, Pittsburgh	32.00	32.00	32.00	27.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	**16.50**	14.75	14.50	14.50
O. Steel Rails, Philadelphia	**18.25**	18.00	17.25	14.75
O. Iron Rails, Chicago	**23.00**	23.00	22.00	19.50
O. Iron Rails, Philadelphia	**24.00**	24.00	22.50	17.50
O. Car Wheels, Chicago	**17.50**	16.00	16.00	14.50
O. Car Wheels, Philadelphia	17.00	17.00	17.00	14.00
Heavy Steel Scrap, Pittsburgh	**18.00**	17.00	16.50	14.50
Heavy Steel Scrap, Chicago	**15.25**	15.00	14.50	13.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.83½	1.83½	1.83½	1.50
Common Iron Bars, Chicago	**1.85**	1.85	1.80	1.45
Common Iron Bars, Pittsburgh	**1.84¼**	1.84¼	1.74¼	1.44½
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.50
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.35
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.54½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.40
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.54½
Beams, Pittsburgh	1.70	1.70	1.70	1.40
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.54½
Angles, Pittsburgh	1.70	1.70	1.70	1.40
Skelp, Grooved Steel, Pittsburgh	**1.55**	1.55	1.50	1.40
Skelp, Sheared Steel, Pittsburgh	**1.65**	1.65	1.55	1.50
SHEETS, NAILS AND WIRE:				
Sheets, No. 27, Pittsburgh	2.15	2.15	2.15	2.00
Wire Nails, Pittsburgh	1.80	1.80	1.80	1.60
Cut Nails, Pittsburgh	1.65	1.65	1.65	1.60
Barb Wire, Galv., Pittsburgh	2.25	2.25	2.25	2.05
METALS:				
Copper, New York	16.62½	16.50	16.62½	14.50
Spelter, St. Louis	**6.00**	6.00	5.95	5.35
Lead, New York	**5.50**	5.25	5.25	4.60
Lead, St. Louis	**5.25**	5.15	4.95	4.40
Tin, New York	**33.25**	33.20	32.60	29.00
Antimony, Hallett, New York	**12.50**	12.50	12.25	8.00
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, domestic, Bessemer, 100 pounds, New York	3.49	3.49	3.49	3.64

Chicago.

FISHER BUILDING, November 15, 1905.—(*By Telegraph.*)

The upward movement of Pig Iron values continues, $20 having already been reached by Malleable Bessemer in this market, and it is only a matter of a few days until Northern Foundry will be selling on the same basis. It is apparent that there will be a heavy shortage of Malleable Iron in the West during the winter months, as many foundries are already unable to secure a sufficient supply to meet their current requirements, which are greater than ever before, owing to the tremendous tonnage of castings they have on their books from railroads and car interests. Lake Superior Charcoal Iron has been advanced $1, and another advance is expected before the end of the week. The sale of 14,000 tons of Northern and Southern Basic to a Western Steel plant was the largest Pig Iron transaction of the week, although scattering sales of small lots were numerous and the week's aggregate was quite heavy. In finished lines new tonnage has been light as compared with previous weeks, but specifications continue heavy, affording no relief from the congestion at the mills. The Steel for another lake vessel has been placed, including 1500 tons of Plates which went to a local mill and 2000 tons of Structural Shapes assigned to Pittsburgh. The contract for the erection of the Dearborn street rolling lift bridge was placed this week, requiring 1500 tons of Structural Material, while the Northwestern Elevated is considering an extension requiring 8000 tons. Western railroads disposed of fully 15,000 tons of Old Material in the past week at prices showing an advance of 50c. to 75c. a ton. Iron mills and foundries are buying heavily and are laying in large stocks to guard against interrupted deliveries during the winter.

Irregular Coke shipments from the Connellsville and Virginia fields are interfering with blast furnace operations, but the Illinois Steel Company is amply provided with a stock of 300,000 tons at Buffington to tide over the inevitable shortage during the winter months. Eastern Plate mills selling in this market are considering an advance of $2 a ton, owing to the increased cost of Raw Material, but Western mills are not in favor of higher prices, and are willing to take on all the tonnage offered on the present basis.

Pig Iron.—The sale of 14,000 tons of Basic, of which 8000 tons were Northern and 6000 tons Southern, is the largest Pig Iron transaction of the week. The local foundry whose purchase of 6000 tons was noted last took an additional 4000 tons, making 10,000 tons in all. Scattering sales of small lots are numerous, and are largely for prompt delivery. Sales of Northern Foundry Iron have been made at $19 and $19.50, Chicago, and $20 is already in sight. Lake Superior Charcoal furnaces have advanced their price to $18 at the furnace, equivalent to $19.50, Chicago, and one outside furnace is quoting $20, delivered. Most of the Southern producers are holding firm at $14.50, Birmingham, for No. 2, although $14 can still be done. We revise Chicago quotations as follows:

Lake Superior Charcoal	$19.50 to $20.00
Northern Coke Foundry, No. 1	19.75 to 20.25
Northern Coke Foundry, No. 2	19.00 to 19.50
Northern Coke, Foundry No. 3	18.50 to 19.00
Northern Scotch, No. 1	19.50 to 20.00
Ohio Strong Softeners, No. 1	20.30 to 20.55
Ohio Strong Softeners, No. 2	19.80 to 20.30
Southern Coke, No. 1	18.40 to 18.65
Southern Coke, No. 2	17.90 to 18.15
Southern Coke, No. 3	17.40 to 17.65
Southern Coke, No. 4	16.90 to 17.15
Southern Coke, No. 1 Soft	18.40 to 18.65
Southern Coke, No. 2 Soft	17.90 to 18.15
Southern Gray Forge and Mottled	16.65 to 16.90
Malleable Bessemer	19.00 to 19.50
Standard Bessemer	19.30 to 19.55
Southern Basic	18.65
Jackson Co. and Kentucky Silvery, 6 %	18.80
Jackson Co. and Kentucky Silvery, 8 %	20.80
Jackson Co. and Kentucky Silvery, 10 %	22.30

Metals.—Pig Tin continues to advance, while the Spelter market is somewhat easier and slightly lower prices are anticipated. Lead continues scarce and prices are firmly maintained. We quote: Casting Copper, 16⅞c. to 17c.; Lake, 17c. to 17¼c.; Pig Tin, car lots, 34c. to 35c.; small lots, 35½c. to 36c.; Spelter, prompt delivery, 6¼c. to 6½c. for car lots; Lead, Desilverized, 5½c. to 5¾c.; Corroding, 6c. for 50-ton lots; on car lots, 2½c. per ton higher; Light Brass, 7¾c.; Sheet Zinc is $7.50, list, f.o.b. Lasalle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 15c.; Heavy Copper, 14½c.; Copper Bottoms, 13½c.; Copper Clips, 14¼c.; Red Brass, 13¾c.; Red Brass Borings, 11¼c.; Yellow Brass, Heavy, 10c.; Yellow Brass Borings, 8¼c.; Light Brass, 8c.; Lead Pipe, 4⅝c.; Tea Lead, 4.10c.; Zinc, 4½c.; Pewter, No. 1, 21c.; Block Tin Pipe, 27½c.

(*By Mail.*)

Billets.—The demand for Forging Billets continues limited to small lots for immediate delivery. Only one Western mill is in position to take the tonnage that is offered and is holding Billets at $35, flat, f.o.b. Chicago.

Rails and Track Supplies.—Western interurban electric roads are now beginning to place contracts for 1906 delivery, one Indiana road having contracted for 2500 tons and another road is in the market for 1000 tons. The flotation of these companies can be more readily accomplished at the present time than a year ago, when bonds of all kinds were a drug on the Eastern market. The demand for Light Rails continues heavy and large orders for Track Supplies continue to be placed. Track Bolts have again been advanced. We revise quotations as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 1.85c. to 1.95c.; Track Bolts, 2.50c. to 2.60c., base, Square Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30 lb. to 45 lb. Sections, $26 to $26.50; 25-lb., $27 to $27.50; 20-lb., $28 to $28.50; 16-lb., $29 to $29.50; 12-lb., $30 to $30.50; lighter Sections down to 8-lb., $35 to $38, f.o.b. mill. Standard Sections are quoted $28, f.o.b. mill, full freight to destination.

Structural Material.—No large contracts for Structural Material for building purposes are now under consideration, and it is doubtful if the tonnage for the new buildings now projected for erection in this city next year will be placed until after the first of the year. For future delivery from mill we make the following quotations: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼-inch and heavier, 1.86½c.; Angles larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work. Store prices on Angles, Beams and Channels range from 2c. to 2.25c., according to quantity on hand, in store or obtainable from mill.

Plates.—New business in Plates continues light, which is due almost entirely to the large contracts placed with the mills some months ago. The contracts for the Plates for another lake vessel whose berth was reserved last week, amounting to 1500 tons, have been placed with the local mill. We quote: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8 up to 60 inches wide, 2.10c. to 2.15c.; Flange quality, 25c. extra.

Sheets.—The Sheet market continues to be in a chaotic condition. Manufacturers report that they have secured as high as 2.30c. on Black Sheets, 28 gauge, while on some other orders on which a lower price was quoted they did not secure the business. Galvanized Sheets, on the other hand, are somewhat stronger and the mills are experiencing little difficulty in securing 3.30c., Pittsburgh, for 28 gauge. Mills have a comfortable tonnage on their books and the low prices that continue to come out continue an enigma to most of the manufacturers. Quotations are unchanged, as follows: Blue Annealed, Nos. 9 and 10, 1.81½c. to 1.86½c.; Box Annealed, Nos. 18 and 20, 2.16½c. to 2.21½c.; No. 27, 2.26½c. to 2.31½c.; No. 28, 2.36½c. to 2.41½c., with the customary differentials between gauges. Store prices are 2c. to 2.10c. for No. 10 Blue, 2.05c. to 2.15c. for No. 12 Box, 2.10c. to 2.20c. for No. 14, 2.20c. to 2.30c. for No. 16, 2.40c. to 2.50c. for Nos. 18 and 20, 2.50c. for Nos. 22 and 24, 2.55c. to 2.65c. for No. 26, 2.60c. to 2.70c. for No. 27, 2.70c. to 2.80c. for No. 28, 2.95c. to 3.05c. for No. 30. Galvanized Sheets are quoted in car lots from mill at the following prices: No. 10, 2.36½c. to 2.41½c.; Nos. 17 to 21, 2.71½c. to 2.76½c.; No. 27, 3.21½c. to 3.26½c.; No. 28, 3.36½c. to 3.41½c. Store prices on Galvanized Sheets are firmer than for some time and high prices are being demanded for sizes difficult to obtain. Prices are as follows: Nos. 10, 12 and 14, 3.10c. to 3.20c.; Nos. 16 to 20, 2.90c. to 3c.; Nos. 22 to 24, 3c. to 3.15c.; No. 26, 3.20c. to 3.35c.; No. 27, 3.40c. to 3.55c.; No. 28, 3.60c. to 3.75c.; No. 34, 4.85c. to 4.95c.

Bars.—Local mills continue to receive considerable current business, which in the aggregate tonnage is not much below their daily shipments, and are therefore not catching up very rapidly on deliveries. Iron Bars are firm at 1.85c. and we note the sale of 2000 tons on this basis. Quotations are as follows: Iron Bars, 1.85c.; Steel Bars, 1.66½c., both half extras; Hoops, 1.91½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.76½c., half extras, and Hard Steel Angles and Bars at about 10c. below the price of Soft Steel. In store prices Steel Bars and Bands are being held at a minimum of 1.85c., base, half extras; Steel Angles and Shapes, 1.95c., half extras, and Soft Steel Hoops, 2.20c., full extras, with 5c. to 10c. higher than the minimum prices named for small quantities from store.

Merchant Steel.—Shafting manufacturers are beginning to close contracts for delivery for the first of the year at prices now prevailing. The market on all lines of Merchant Material continues very firm, and jobbers report heavy sales from store. Quotations are unchanged as follows: Planished or Smooth Finished Tire Steel, 1.70c.; Iron finish up to 1½ x ½ inch, 1.65c., and Iron finish 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c., Pittsburgh; Smooth Finish Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.86½c.; Cutter Shoe, 2.40c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting, 50 per cent. discount on car lots and 45 per cent. in less than car lots, in base territory.

Merchant Pipe.—Contracts for Bedstead Pipe for delivery through the first half of next year, and in some cases through the entire year, are now being taken by the Pipe mills. Competition is keen and it is reported that low prices are prevailing. Discounts on Merchant Pipe are not being shaded, which is not altogether due to the heavy demand but rather to the high prices prevailing for Raw Material. Current discounts are as follows: Black Steel Pipe, 78.35 per cent. on the base sizes, ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—Current business is fair considering the season, and prices are being fairly well maintained, although some shading continues to be reported. Official discounts, f.o.b. Chicago, in car lots, are as follows: Steel Tubes,

62.35; Iron, 51.35; Seamless, 50.35. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ inches	40	35	42½
1¾ to 2¼ inches	50	35	35
2½ inches	52½	35	30
2¾ to 5 inches	60	47½	42½
6 inches and larger	50	35	..

Cast Iron Pipe.—The demand continues limited almost entirely to small lots for immediate shipment, owing to the advent of the coming closed season in the West and Northwest, when no Pipe can be laid. Quotations on current business remain unchanged as follows, f.o.b. Chicago, per net ton: Water Pipe, 4 inch, $30; 6, 8, 10 and 12 inch, $29; over 12 inch, $28, with $1 extra for Gas Pipe. Very large municipal contracts are placed at a somewhat lower basis.

Coke.—High prices continue to prevail on Connellsville Foundry Coke for immediate shipment, and dealers receiving Coke on consignment experience no difficulty in selling the same upon its arrival in this district at prices ranging from $6.65 to $6.75, delivered, Chicago. Wise County Coke is now held at $4.25 to $4.50 at the ovens and shipments are very light.

Old Materials.—Western railroads disposed of about 15,000 tons of Scrap last week at prices ranging from 50c. to 75c. a ton above our previous quotations. The Illinois Central Railroad, after being out of the market about two months, disposed of 7000 tons. The Santa Fé this week will close a list of about 2000 tons and other heavy railroad offerings are expected within the next two or three weeks. Several inquiries for Heavy Melting Steel have been received this week from Pittsburgh mills, but the prices which they offer are still below those prevailing in this district and no sales have yet been made. The range of prices paid by large consumers to producers and dealers in carload lots, f.o.b. Chicago, are as follows:

Old Iron Rails	$23.00 to $23.50
Old Steel Rails, 4 feet and over	16.50 to 17.00
Old Steel Rails, less than 4 feet	16.50 to 17.00
Heavy Relaying Rails, subject to inspection	26.50 to 27.00
Old Car Wheels	17.50 to 18.00
Heavy Melting Steel Scrap	15.25 to 15.50
Frogs, Switches and Guards	15.25 to 15.50
Mixed Steel	13.00 to 13.50

The following quotations are per net ton:

Iron Fish Plates	$19.00 to $19.50
Iron Car Axles	23.00 to 23.50
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	17.50 to 18.00
No. 2 Railroad Wrought	16.00 to 16.50
Locomotive Tires, smooth	14.25 to 14.50
Railway Springs	15.00 to 15.50
No. 1 Dealers' Forge	14.00 to 14.50
Wrought Pipes and Flues	14.50 to 15.00
No. 1 Cut Busheling	12.50 to 13.00
Iron Axle Turnings	12.00 to 12.50
Soft Steel Axle Turnings	12.00 to 12.50
Machine Shop Turnings	11.50 to 12.00
Cast Borings	10.00 to 10.50
Mixed Borings, &c	9.75 to 10.00
No. 1 Mill	10.00 to 10.50
Country Sheet	9.00 to 9.25
No. 1 Rollers, cut to Sheets and Rings	12.00 to 12.50
No. 1 Cast Scrap	14.50 to 15.00
Stove Plate and Light Cast Scrap	12.00 to 12.50
Railroad Malleable	14.50 to 15.00
Agricultural Malleable	14.00 to 14.50

Philadelphia.

REAL ESTATE TRUST BUILDING, October 14, 1905.

The market for Iron and Steel during the past few days has been strong, but prices are not quotably dearer, although the average on the week's business would probably be higher than at any time during the entire year. The upward tendency is, perhaps, not as distinct as it has been, but there are no signs of reaction, although there may be a period of quietness following the recent great activity. Buyers are supposed to have nearly all the Iron they will need during the next four or five months, and are therefore in a position to stand pat until they see the necessity or the advisability for making additional purchases. Sellers by the same rule can also afford to wait developments and are rather inclined to do so if buyers do not spoil their plans. On the whole, it looks as though this programme will be carried out, both sides being satisfied with their achievements, in which case it will not be long before the trade know just where they stand. The production of Pig Iron is now at the rate of 25,000,000 tons per annum, and, judging from the slowness in deliveries, consumption is certainly not less than that and may be a little more, although the pressure on the finishing mills does not appear to be nearly as great as it was during the last great boom, when heavy importations were necessary to make up the deficiency. This is probably due to the increase in the capacity of many of the large finishing mills, and to some entirely new plants, such as the Lackawanna, the Eastern Steel Company and others in the Central West. The greatest shortage appears to be in structural material. Almost everything else can be had with reasonable promptness and without any material advance in prices. Pig Iron is the keynote of the situation, and as that goes finished products will follow very closely.

Pig Iron.—The market has been less active than for several weeks past, though it has lost nothing in tone or in strength. On the contrary $18.25 is a minimum figure for No. 2 X Foundry with many leading makers, and in several instances $18.50 is asked and that figure paid for what are regarded as extra good Irons. It would require very little pressure to bring all Standard Irons to that basis, although some makers are quite satisfied with $18 to $18.25, but of course all depends upon the circumstances in each individual case. Those who bought heavily when prices were $1 or $2 lower than they are to-day would have to pay full prices for anything additional, while those who buy as they go along and have no low priced Iron to fall back on are given the easiest terms possible, so that while $18.50 is required from some buyers' regular customers who have claims such as mentioned have been supplied at $18. A fair average price, however, would be $18.25 for Standard No. 2 X. As to the course of the market in the near future it is difficult to say anything with much confidence. The feeling in the trade is that $20 Iron will be seen before the year is out, and there are certainly some good reasons for that opinion, but a supply at the rate of 25,000,000 tons per annum is a big proposition. Against that, however, stands the fact that Pig Iron is scarce, and while that continues prices will certainly not decline and under renewed buying would easily reach the figure named. The refusal of the furnaces to furnish reports in regard to the stocks they are carrying is felt by the leading men in the trade to be a great mistake. If it is better to deal with the devil we know than with the devil we don't know, it would be better for the trade to know what they are butting against in the way of stocks than to be compelled to guess at it. Some of these days it will cause trouble, as consumers of Pig Iron cannot but feel that the refusal to show up is not intended for their benefit. A good deal of comment has been made in regard to this matter since production has been shown to be so large, and as representing the feeling in this vicinity we think it right that the matter should be considered seriously. Matters of this kind are not given much attention when conditions are as favorable as they now are, but when dullness begins suspicion begins, and suspicion is frequently worse than is warranted by an exact knowledge of the actual facts. In the meanwhile good Irons are certainly not overabundant. Basic Iron is scarce; Low Phosphorus is almost unobtainable, but there are some lots of misfit Iron around which can be had at relatively low figures; but on the whole the market is firm at an average advance of about 25c. per ton from last week's figures, which would make prices for Philadelphia and nearby deliveries about as follows:

No. 2 X Foundry	$18.00 to $18.50
No. 2 Plain	17.50 to 18.00
No. 2 Southern	18.00 to 18.50
Standard Gray Forge	16.25 to 16.50
Basic	17.50 to 17.75
Low Phosphorus	23.50 to 24.00

P. S.—The Tennessee Coal & Iron Company has advanced its prices to $14.50, f.o.b. cars furnace.

Ferromanganese.—This article is hardly obtainable at any price for this year's deliveries. A lot of 1000 tons, 80 per cent., was offered at $70, c.i.f., for shipment first half of 1906, which is the only quotation that we have been able to find since last week.

Ferrosilicon.—Prices are nominal as last quoted: 11 per cent., $29 to $30; 50 per cent., $95, and 75 per cent., $170 to $175.

Steel.—Spot lots are hard to get for this year's deliveries of ordinary Open Hearth Steel. There is no great desire to enter additional business for 1906, even at $30, as the mills are heavily loaded with orders, but regular buyers might get in at that figure, or possibly at a shade less, if they had valid claims for favorable consideration. The range of prices would be $29.50 to $30.50 for ordinary Billets and $35 to $40 for Forging Billets.

Muck Bars.—There is more inquiry and some business has been done at about $27.75, sellers' mills. Prospects are thought to be improving, and $28 is asked at most of the mills.

Plates.—Business is not what may be called rushing, but it is satisfactory and about equal to what the mills can handle. Some proposals at quoted rates have been turned down because of rather heavy freights and partly because of the extended deliveries. The delay in work by several of the construction companies has to some extent delayed specifications to the Plate mills, but on the whole business is in excellent shape. Prices unchanged, as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel	1.93½	1.98½
Still Bottom Steel	2.03½	2.08½
Locomotive Fire Box Steel	2.23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Per 100
3-16-inch thick	$0.10 pounds extra.
Nos. 7 and 8, B. W. G.	.15 "
No. 9, B. W. G.	.25 "
Plates over 100 to 110 inches	.05 "
Plates over 110 to 115 inches	.10 "
Plates over 115 to 120 inches	.15 "
Plates over 120 to 125 inches	.25 "
Plates over 125 to 130 inches	.50 "
Plates over 130 inches	1.00 "

Structural Material.—There is plenty of business, but quotations are a good deal of a farce. A large consumer made the remark that at the official prices nothing can be had. At a tenth to two-tenths more something can be had by waiting for it, and at three or four tenths more there is no difficulty in getting any reasonable quantity without waiting at all. Under such conditions official quotations of 1.83½c. to 2c. can only be regarded as a starting point to other quotations.

Bars.—The situation in the Bar trade conforms in some measure with that in Structural Material. Prices are officially 1.63½c., but nobody expects to buy at that figure, and if they can do a couple of tenths better they consider themselves lucky. This, if it shows nothing else, certainly indicates that there is no scarcity of business and that manufacturers are independent enough to make prices to suit themselves regardless of what others may quote.

Sheets.—There is a strong demand and prices are firmer, but they are no higher. Business can be done at quoted rates, which are about as follows: 18 to 20 gauge, 2.30c.; 22 to 24 gauge, 2.40c.; 25 and 26 gauge, 2.50c.; 27 gauge, 2.60c., and 28 gauge, 2.70c.

Old Material.—Prices are about the same as last week and are fairly steady. No. 1 Steel Scrap brings $17.50 to $18, but below the last named figure only straggling lots can be picked up. Some of the mills complain that Steel Scrap is crowded on them in advance of dates specified for deliveries, but this does not necessarily prove that there are excessive supplies. If stocks were out of proportion with the demand prices would decline, but as they are firm at the figures above named it is fair to assume that demand and supply are about equal. Sales in this district at prices above amount to at least 30,000 tons since November 1. Bids and offers for deliveries in buyers' yards are about as follows:

Scrap Steel Rails	$18.25 to $18.50
No. 1 Steel Scrap	17.50 to 18.00
Low Phosphorus Scrap	23.00 to 23.50
Old Steel Axles	21.50 to 22.50
Old Iron Axles	26.50 to 27.50
Old Iron Rails	24.00 to 25.00
Old Car Wheels	17.00 to 17.50
Choice Scrap, R. R. No. 1 Wrought	23.00 to 23.50
No. 1 Yard Scrap	20.00 to 20.50
Long and Short	19.50 to 20.00
Machinery Scrap	16.00 to 16.50
Wrought Iron Pipe	17.00 to 17.50
No. 1 Forge Fire Scrap	16.00 to 16.50
No. 2 Light Ordinary	13.00 to 13.50
Wrought Turnings	14.50 to 15.00
Axle Turnings, Choice Heavy	15.50 to 16.00
Cast Borings	10.75 to 11.00
Stove Plates	13.00 to 13.50
Grate Bars	12.75 to 13.00

Pittsburgh.

PARK BUILDING, November 15, 1905.—(*By Telegraph.*)

Pig Iron.—While no large sales of Bessemer or Basic Iron have been made since our last report, there is a moderate inquiry and Iron for delivery this and next month is very scarce and commands top prices. Practically all the large tonnage sold in these grades has been at $17, Valley furnace, but a few small scattered sales have been made at $17.25 to $17.50, Valley furnace, and it is doubtful whether any tonnage of either could be had to-day at less than $17.50, at furnace. The future course of the market on both will depend largely on whether the United States Steel Corporation buys any more Iron. We note a moderate inquiry for Foundry. Northern brands of No. 2 are very firm at $16.75 to $17, Valley furnace, some sellers absolutely refusing to shade the higher price at which some sales of moderate tonnage have been made. There is not much inquiry for Forge Iron, large consumers being pretty well covered, but prices are very firm on Northern Forge on the basis of $15.75 to $16, Valley furnace. We note a sale of about 1500 tons of Gray Forge of a special grade at a price equivalent to $15.90, Valley furnace.

Steel.—While there is only a fair inquiry for Steel, it continues very scarce, and prices are firm on the basis of $26 for Bessemer Billets and $27 to $28 for Open Hearth Billets, maker's mill, for prompt delivery. Sheet and Tin Bars in random lengths are $27, maker's mill. Forging Billets are $30 and higher, depending on specifications.

Iron and Steel Scrap.—In sympathy with Pig Iron, prices on Scrap continue to advance rapidly and the market is very firm. The demand is quite active and a good deal of Scrap is changing hands. We have advanced our prices and now quote as follows: Heavy Melting Scrap, $18; No. 1 Wrought Scrap, $20 to $20.50; Cast Iron Borings, $10.50 to $10.75; Bundled Sheet Scrap, $15.50 to $16; Old Steel Rails, short pieces, $18; long pieces, $17.75 to $18; Machinery Cast Scrap, $16; Cast Steel Scrap, $17 to $17.50; Old Car Wheels, $18 to $19; Malleable Iron Scrap, $16 to $16.50; Old Iron Rails, $24, all in gross tons, f.o.b. Pittsburgh.

(*By Mail.*)

Reports are in circulation that the United States Steel Corporation has bought 50,000 tons of Bessemer Iron for first quarter delivery from the Bessemer Pig Iron Association at $17, Valley furnace. We can state on reliable authority that these reports are untrue. While some negotiations have been held nothing definite has been done and may not be for some time yet. The purchase of Iron so far ahead is a radical departure from the usual policy of the Steel Corporation, which heretofore has bought from month to month, and the question as to whether it will continue its usual policy of buying from month to month or whether it will buy for forward delivery is one that will be settled in conference among its officials. There is a moderate inquiry for Bessemer and Basic Iron and the absolute minimum of the market is $17, Valley furnace, or $17.85, Pittsburgh, while some sales of small lots for November and December delivery are reported to have been made at $17.25 to $17.50, Valley furnace. There is a moderate inquiry for Foundry Iron, Northern No. 2 being firmly held at $16.75 to $17, Valley furnace. Several sales of fair sized lots have been made at the higher price. Some sales of Forge Iron were made in this market a week or ten days ago at $15.50, Valley furnace, or $16.35, Pittsburgh, but most sellers are now quoting $15.75 to $16, Valley. There is some inquiry for Steel, which continues scarce, Bessemer Billets being held at $26 and Open Hearth $27, or higher. There has been a sensational advance of about $10 a ton in Ferromanganese, which has sold in the past week at $75, Pittsburgh, for small lots. Nothing of special interest has developed in the Finished Iron and Steel market, the tonnage now booked on practically all lines being enormously heavy. On Plates, Structural Steel and Bars the mills are sold up through the first half of next year or longer.

Ferromanganese.—The scarcity in Ferro is more pronounced and it can hardly be had at any price. Dealers who have some to offer now quote $75 for English 80 per cent., and we can note sales of 100 tons or more for November and December delivery at this price. We quote $75 to $77, delivered, for carloads and larger lots.

Steel Rails.—In the past week from 75,000 to 100,000 tons of Rails have been placed, mostly by Western railroads, and several large contracts have also been placed by traction roads. The mills will carry over a large tonnage into next year and have already booked more than 1,500,000 tons for 1906 delivery. We quote Standard Sections at $28 and Splice Bars at 1.50c. to 1.60c. The tonnage in Light Rails is large and prices are firm, several mills having recently advanced these $1 a ton. We quote Light Rails as follows: 8-lb., $36 to $37; 10-lb., $32 to $33; 12-lb., $29 to $30; 16-lb., $27 to $28; 25-lb. to 45-lb., $26 to $26.50, all f.o.b. cars, maker's mill.

Rods.—We note a very firm market and inquiries for several round lots are in the market. We quote Bessemer and Open Hearth Rods at $32 and Open Hearth Chain Rods at $33, maker's mill.

Muck Bar.—The market is very firm and there is a fair inquiry. We quote best grades of Muck Bar, made from all Pig Iron, at $29 to $29.25, Pittsburgh.

Skelp.—Prompt deliveries are hard to obtain, the mills having a large tonnage on their books on which they are considerably behind in shipments. Prices are firm and we quote: Grooved Steel Skelp, 1.55c. to 1.60c.; Sheared, 1.65c. to 1.70c.; Grooved Iron Skelp, 1.65c. to 1.70c., and Sheared, 1.75c. to 1.80c. These prices are for ordinary widths and are f.o.b. maker's mill.

Plates.—It is the same old story with Plates, the leading mills being filled up with tonnage for six to eight months ahead, most of which is going into Steel cars. The smaller Plate mills that do not cater to the Steel car trade also have a good deal of tonnage on their books, but are still able to make fairly prompt shipments. Some of the mills that buy Plate Slabs in the open market are very insistent that an advance in price of Plates should be made, and this may possibly be done before long. The market is very strong, official prices being as follows: Tank Plates, ¼ inch thick, 6¼ up to 100 inches in width, 1.60c., base, at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00

All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
Marine, "A. B. M. A.," and ordinary Fire Box Steel Plates	.50
Still Bottom Steel	.30
Locomotive Fire Box Steel	.50
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.40c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Structural Material.—No local contracts of magnitude have been placed in the past week, but there is a steady flow of small work which aggregates considerable tonnage. The leading Structural companies are really more concerned at present in getting out contracts already on their books, on which they are very much behind in deliveries, than they are in seeking new business. Deliveries from the mills are still very unsatisfactory, more especially on Open Hearth stock. None of the leading Structural concerns are in position to take on new business and promise deliveries inside of four to six months. The market is very firm and we quote: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.70c.; 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Sheets.—In spite of the continued heavy demand for Sheets, and which seems to be steadily growing larger, there is no improvement in prices, which are very much lower than they ought to be in view of the heavy demand and the high prices the mills are paying for Sheet Bars. It is still believed that present unusual conditions in the Sheet trade cannot continue much longer, but that an official advance in prices will be made before very long. The market is firm and we quote: Black Sheets, box annealed, one pass through cold rolls, Nos. 22 and 24 gauge, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.25c.; No. 29, 2.40c., and No. 30 gauge, 2.50c. Galvanized Sheets are firm in price and we quote: Nos. 22 and 24, 2.70c.; Nos. 25 and 26, 2.90c.; No. 27, 3.10c.; No. 28, 3.30c.; No. 29, 3.55c.; No. 30, 3.80c. We quote No. 28 gauge Painted Roofing Sheets at $1.60 per square, and Galvanized Roofing Sheets, No. 28 gauge, at $2.80 for 2½-inch corrugation. Jobbers charge the usual advances over these prices for small lots from store.

Iron and Steel Bars.—The tonnage continues heavy, and with liberal specifications on contracts the mills are snowed under with business and seem to be getting farther behind in deliveries right along. The demand for Bars for car building purposes is unusually heavy and is taking a large part of the tonnage of the mills. We quote Iron Bars at 1.80c., Youngstown, or 1.84¾c., Pittsburgh, and the market seems to be firm at this price. We quote Steel Bars at 1.50c., base, half extras for carloads and larger lots.

Hoops and Bands.—The mills are filled up with tonnage, the current demand being fairly large, while specifications on contracts are coming in very freely. We quote Steel Hoops at 1.75c. and Bands to be used for cooperage purposes at 1.75c., the latter carrying full Hoop and Band extras. Bands for other than cooperage purposes are 1.50c., base, half extras, as per Standard Steel card. Above prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery.

Tin Plate.—The demand is slowly showing betterment and is about as heavy as usual at this season of the year. Efforts made by some of the mills to have the price of Tin Plate advanced have so far been without result. We quote at $3.30 per base box, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, and note that some of the independent mills, who are now quoting $3.25 per box, are not inclined to sell below that price.

Merchant Steel.—Specifications on contracts placed some time ago by implement and vehicle makers are coming in very freely, and the mills are filled up with tonnage and somewhat behind in deliveries. The demand for the best grades of Tool Steels is unusually large. We quote as follows: Smooth Finished Tire, 1.70c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.65c. to 1.70c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades. The demand for Shafting is heavy, which we quote at 50 per cent. discount in carloads and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—We can report a very heavy demand. The mills are sold up for several months ahead. The recent advances in prices are being firmly held, and we quote Railroad Spikes at $2 to $2.05 per 100 lbs., f.o.b. maker's mill.

Spelter.—For the first time in some weeks we can report an easier market, large consumers holding off buying to see whether the market can be held on its present high level. We quote prime grades of Western at 6c., St. Louis, equal to 6.12½c., Pittsburgh, and on a firm offer this might be slightly shaded.

Merchant Pipe.—The favorable weather is partly responsible for the heavy demand for Pipe, which has been a feature of the market for three or four weeks, the leading mills being pretty well filled up with tonnage for some months. Several large Oil and Gas lines are in the market, but owing to the lateness of the season for starting outdoor work these will probably go over into next year. Prices on Pipe continue extraordinarily low in view of the active demand and the high prices of Skelp, but there does not seem to be much prospect of an advance in prices in the near future. Discounts are as follows:

Merchant Pipe.

	Jobbers, carloads. Steel. Blk.	Galv.	Iron. Blk.	Galv.	Consumers, carloads. Steel. Blk.	Galv.	Iron. Blk.	Galv.
	%	%	%	%	%	%	%	%
⅛ and ¼ inch	72	56	69½	53½	71	55	68½	52½
⅜ and ½ inch	76	64	73½	61½	75	63	72½	60½
¾ to 6 inches	80	70	78	68	79	69	77	67
7 to 12 inches	75	60	73	57½	74	59	72	56½
Extra strong, plain ends:								
⅛ to ¾ inch	65	53	62½	50½	64	52	61½	49½
⅞ to 4 inches	72	60	69½	57½	71	59	68½	56½
4½ to 8 inches	68	56	65½	53½	67	55	64½	52½
Double extra strong, plain ends:								
½ to 8 inches	61	50	58½	47½	60	49	57½	46½

Boiler Tubes.—A good deal of new tonnage is being placed, and with old contracts the output of the mills is booked up for several months. Prices are firm, discounts being as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ inches	41	44
1¾ to 2¼ inches	44	55
2½ inches	46	58
2¾ to 5 inches	53	64
6 to 13 inches	41	56

On Boiler Tubes 2½ inch and smaller, over 18 feet long, 10 per cent. net extra, and on 2¾-inch and larger, over 22 feet long, 10 per cent. net extra.

Coke.—The output continues to break all records, the Upper and Lower Connellsville region having turned out last week 363,597 tons. The demand for both Furnace and Foundry Coke continues active, and strictly Connellsville Furnace Coke for first quarter and first half delivery is held at $3 a ton at oven. We can note sales of a considerable tonnage at this price. Strictly Connellsville 72-hour Foundry Coke is held at $3.50 a ton at oven, and a number of contracts have been made at this figure. Practically all of the ovens in the Upper and Lower Connellsville regions that can be operated are making Coke, and as fast as new ovens are built they are started up. The H. C. Frick Coke Company is building three new plants in the southern end of the Connellsville region. These will be started before the first of the year and will add about 1000 ovens to the active list. The movement of Coke is fairly satisfactory, the supply of cars being quite plentiful. Main line brands of Furnace Coke are held at $2.50 to $2.75, and Foundry at $3 to $3.25 at oven.

Cleveland.

CLEVELAND, OHIO, November 14, 1905.

Iron Ore.—Boats have been delayed more or less at the upper lake ports of late on account of frozen Ore in the pockets, steaming being now almost always necessary. This will probably bring about a sharp decline in the shipments for November. A few sales of Ore for 1906 delivery have been reported at 25c. over this season's prices, or at $4 for Bessemer Old Range, f.o.b. Lake Erie docks. General buying has not yet started and is not likely to do so for some time.

Pig Iron.—One consumer of Foundry Iron in the Valleys was in the market the past week for a comparatively small block of No. 2 for first quarter delivery. Although at a point where the freight rate from Valley furnaces was only 20c., he had to go outside the Valleys for his material and pay five or six times his natural freight rate on the Iron. This is an indication of the sold up condition of all of the furnaces in this territory. No. 2 Foundry for spot shipment is practically out of the question. At various times as high as $18 has been paid for No. 2 for delivery running through the next four or five months, and nothing less than $17.50 has been heard here of late. The buying movement seems to have started again. Monday one consumer came into the market and covered his needs through the first half of the year and proposed to buy Iron at current prices for delivery through the third quarter of next year. Furnaces hesitate on business of that character. Spot Iron is so scarce that the producer having any to sell can about command his own figures. Many of the Southern furnaces entering this market are also sold up. Southern Iron is now

quoted at $14, Birmingham, to which is added $3.85 freight rate to make the Cleveland price. This is in keeping with present Valley quotations. Steel making Irons are extremely scarce. The price ranges for early deliveries from $17.50 to $18 in the Valleys. For the first quarter of 1906 the Steel Corporation has bought 50,000 tons at $17 at furnace. The best grades of 72-hour Foundry Coke are selling at $4 firm at the ovens, and Furnace Coke is quoted $3.25 to $3.50 at the oven.

Finished Iron and Steel.—The strain seems to be intensified all through this territory. Salesmen are withdrawn from the road and mills are principally occupied in looking after deliveries. Perhaps the scarcest thing in Steel is Billets. A few mills have been selling in this territory on the basis of $30 at the mills for Forging Billets, which made the Cleveland price $32.40, delivered. These mills have now withdrawn from the market, and while orders are accumulating it is extremely difficult to find any mill in position to supply them. The demand for Light Rails is still very strong. Some sales have been made of late as high as $33, Cleveland, for 16-lb. Rails, and the supply is short at even that figure. Other sizes of Light Rails are in equal demand and prices are strong. In Plates the situation is comparatively easy. Any of the smaller mills is in position to make deliveries in two to three weeks, while many of the larger mills are offering deliveries inside a month. Under the circumstances the market is steady at the association price of 1.60c., Pittsburgh. Bar Iron is especially strong. There is a good demand for future delivery, with many of the mills reporting they have nothing to sell until after July 1. The demand is not satisfied and those having material can easily obtain 1.75c. to 1.80c. The high price of Scrap is contributory to the firm market. On Steel Bars the situation is strong, deliveries being impossible with many mills inside of three or four weeks on the larger sizes. On some small sizes, however, the mills are wanting business. Exactly the reverse is true of the Structural market. The smaller sized Channels, ranging from 4 to 8 inches, and especially 7 and 8 inches, are not to be had. On these sizes the jobbers have been getting 3c. or better for quick shipment, but have been content with a very small profit even at that price. Larger sizes are a little easier, although the whole Structural situation continues strained. The stock prices on the larger sizes are about 2.50c. in the yard. Jobbers are doing most of the selling at present. From the mill standpoint specifications against old contracts are unusually heavy. The Sheet situation is steady, with prices not especially strong. On business out of stock prices hold as they have been at 2.05c. for No. 10 Blue Annealed, 2.55c. for No. 28 One Pass Cold Rolled and 3.55c. for No. 28 Galvanized. Pipe is a little stronger. Full weight Iron Pipe is quoted 77½ off list and Steel Pipe 80 and 5 off list.

Old Material.—The market is unusually strong, with good buying, but prices have not changed materially. The following represents dealers' quotations to the trade, gross tons: Old Steel Rails, $16 to $16.50; Old Iron Rails, $23 to $24; Iron Car Wheels, $16 to $16.50; Heavy Melting Steel, $16.50 to $17. Net tons: Cast Borings, $9.50 to $10; No. 1 Busheling, $15; No. 1 Railroad Wrought, $16.50 to $17; Iron Car Axles, $21 to $22; No. 1 Cast, $14.50 to $15; Stove Plate, $11; Iron and Steel Turnings and Drillings, $11.

Cincinnati.

FIFTH AND MAIN STS., November 15, 1905.—(*By Telegraph.*)

Pig Iron.—The tone of the market is unquestionably stronger, results of the week's business showing conditions to have been fairly active. Inquiry is reported to be good. The disposition on the part of consumers seems to be to have all shipments hurried forward, indicating that there is a material increase in consumption. Considerable difficulty is experienced along this line, as the car situation is assuming anything but a satisfactory attitude and shipments are not moving forward promptly on this account. The railroads are congested and it is often almost impossible to get them to switch freight for unloading, although known to be on track at terminal. The general tendency appears to be for still higher prices, all indications pointing this way. Several of the largest producers of the South are practically out of the market, with their output disposed of as far ahead as the first quarter of next year. Others, again, are asking $14.50, Birmingham, with sales at a minimum, while yet others are selling at $14, Birmingham, which, from all we can gather, represents the ruling quotation and market price for Southern No. 2 to-day. The situation among the Northern furnaces is practically the same, and while several of them are holding for $18, very little tonnage has been sold at this figure. At $17.50, furnace, the market is very strong, quite a large tonnage having been sold at this figure. Standard Southern Car Wheel is reported strong, at $17, with a very limited supply. The demand for Gray Forge has been fairly active, but reports indicate only a small tonnage on hand. No especially large outstanding inquiries are reported, although there is quite an aggregation of small requirements, which for reasons assigned above must necessarily be restricted to a small number of furnaces. The Malleable foundries are reported very busy and everybody is clamoring for Iron and Coke. We have report of one sale of 1000 tons of Malleable to a buyer in Indiana and another sale of 3000 tons of Basic to a central Ohio melter at good figures. There is an inquiry from a central Ohio foundry for 3000 tons, for delivery over the first half; another from southern Ohio for 2000 tons of Mottled for prompt shipment, and numerous inquiries ranging from 100 to 500 tons. We are told that one of the leading Pipe industries bought a heavy tonnage of mixed grades during the week, but at what figure we are unable to ascertain. Freight rates from Hanging Rock district are $1.15 and from Birmingham, $2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$17.25
Southern Coke, No. 2	16.75
Southern Coke, No. 3	16.25
Southern Coke, No. 4	15.75
Southern Coke, No. 1 Soft	17.25
Southern Coke, No. 2 Soft	16.75
Southern Coke, Gray Forge	15.50
Southern Coke, Mottled	15.25
Ohio Silvery, No. 1 (8 % Silicon)	20.15
Lake Superior Coke, No. 1	19.15
Lake Superior Coke, No. 2	18.65
Lake Superior Coke, No. 3	18.15

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	$19.75 to $20.00
Lake Superior Car Wheel and Malleable	19.00 to 19.25

Coke.—The market is very strong and prices are firm. The car situation is such that it is impossible to make definite contracts, guaranteeing prompt delivery. Consumers are having a great amount of trouble in covering themselves on what have heretofore been considered acceptable brands and delays are numerous. Operators are apparently short about 50 per cent. of the equipment required to move contracts, and the situation will undoubtedly grow worse with the approach of winter. We quote the best grades of Connellsville and Virginia Foundry grades from 3.75 to $4, with Furnace Coke selling from $2.65 to $3, f.o.b. ovens.

Finished Iron and Steel.—The demand continues strong, with all the mills reported as having all they can do for months to come. Specifications for the early spring are coming forward at a fair rate, which gives promise of next year being a phenomenal one in the way of structural development. Prices are holding strong. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.65c., with half extras; the same in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same in small lots, 1.85c., with full extras; Base Angles, 1.73c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire, ¾ x 3-16 and heavier, 1.83c., in carload lots.

Old Material.—The market is quite active, strong and steady. A decided improvement is noted over last month in the way of sales and a number of transactions of large tonnage have been made during this period. Prices, so far as we can learn, are unchanged. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $17 to $17.50 per net ton; No. 1 Cast Scrap, $14 to $14.50 per net ton; Iron Rails, $20 to $21 per gross ton; Steel Rails, rolling mill lengths, $15 to $15.50 per gross ton; Relaying Rails, 56-lb. and upward, $24.50 to $25 per gross ton; Iron Axles, $22.50 to $23 per net ton; Car Wheels, $16.50 to $17 per gross ton. Heavy Melting Scrap, $15 to $15.50 per gross ton; Low Phosphorus Scrap, $18.50 to $19 per gross ton.

The Union Furnace at Ironton, Ohio, that went out about 30 days ago for relining and repairs generally, will resume operations within the next ten days.

Birmingham.

BIRMINGHAM, ALA., November 13, 1905.

Pig Iron.—The market continues very strong, with probably a slight advance over last week, although $14 for No. 2 Foundry might be said to be the prevailing price. A few sales are reported at $14.50, but this is only on small lots and to the smaller consumers. Numerous inquiries are reported for spot Iron, also covering deliveries for first half of next year, principally from the small melters, which would seem to indicate that they have just waked up to the fact that Iron is up to stay for at least some time to come, and are now clamoring to place their orders before further advance. Anything offered in the way of spot Iron is quickly snapped up, and even Gray Forge and Mottled are finding ready sale, so great is the demand for immediate delivery. Shipments are exceeding production right along, and at the present rate it will only be a short time until the yards are cleared. No large inquiries or sales have been reported, the activity being confined entirely to small purchasers, but what they lack in quantity is made up in the number of

buyers. This enormous demand is bound to result in higher prices, and while the large producers express themselves as being satisfied with present prices, they are still quoting higher, though claiming not to want to bull the market. The prevailing prices will enable several smaller furnaces to start up which can only operate on a high market. Nothing definite has been given out as to their intention, but it is known that some of them contemplate going in blast as soon as necessary repairs can be made and stocks accumulated. This is, of course, what the larger companies are fighting against and explains why they dislike Iron to go beyond a certain price. It remains to be seen, however, whether they can control the market, much as they would like to do so.

Effective January 1, the Tennessee Coal, Iron & Railroad Company will establish its own sales agencies in the various Iron markets of the country, discontinuing the present manner of selling through agents. In other words, it is announced that Iron will be sold by this company direct to consumers.

Concerning the rumors which have been revived in the East to the effect that efforts are being made to bring about a consolidation of the Tennessee Coal, Iron & Railroad Company, the Sloss-Sheffield Steel & Iron Company and the Alabama holdings of the Republic Iron & Steel Company, as far as can be learned in this section, nothing definite has happened recently in that direction. President Maben of the Sloss Company stated a few days since that he had no information to give out in regard to such a combination.

The annual report of the Sloss-Sheffield Steel & Iron Company for the fiscal year ending November 30 promises to be a healthy one, all the Iron that could be made having been sold, the greater portion of the production bringing a large price.

The Peacock Iron Works, Selma, Ala., manufacturer of tram and logging cars, has bought a tract of land at East Birmingham and will erect one of the largest and most modern foundries in the South. It has been located at Selma for a number of years and does an extensive business throughout the Southern States, as well as a large export trade with the South American countries.

Vice-President Harahan and Chief Engineer Baldwin of the Illinois Central Railroad have been in Birmingham for the past few days arranging to make application to the city and county for certain rights looking to an entrance into this city of their road. Mr. Harahan states that if these privileges are granted it will be operating trains into Birmingham within a year. It is the intention to enter Birmingham over the tracks of the Frisco, but also to build about 75 miles of new track from near Corinth, Miss., on the main line to Jasper in Walker County, Ala. This new line will penetrate valuable ore and coal lands which have heretofore been undeveloped for lack of transportation facilities.

New York.

NEW YORK, November 15, 1905.

Pig Iron.—While there has been only a moderate amount of business the market continues in a strong and healthy condition. Some large as well as many small melters are pursuing the policy of purchasing only for nearby requirements. Other founders reappear in the market suddenly after having apparently covered their needs, thus indicating that their melting is unexpectedly large. We quote for Northern Iron, at tidewater, $18.75 to $19 for No. 1 Foundry, $18.25 to $18.50 for No. 2 Foundry and $17.75 to $18 for No. 2 Plain. Southern Iron is selling on the basis of $17.75 to $18.25, New York harbor.

Steel Rails.—A number of good orders have been taken by the Rail mills in the past week, the largest of these being 25,000 tons for the Boston & Maine and 25,000 additional for the Harriman roads, making their total close to 170,000 tons. The Pacific & Idaho Northern has bought 10,000 tons, the Minneapolis, St. Paul & Sault Ste. Marie 12,500 tons, the Seaboard Air Line 7,000 tons, the Yosemite Valley 9000 tons, the Buffalo, Rochester & Pittsburgh 3000 tons and the Twin City Rapid Transit Company, a trolley line, 5000 tons. There is a good deal of business pending, some of it important, one railroad having negotiations on for 20,000 tons, with one or two other contracts about as large also under consideration.

Structural Material.—In the past week the American Bridge Company has closed contracts amounting to 10,000 tons, none of them large. There is also a good deal of figuring on a variety of jobs calling for small tonnages. The strike of structural workers has scarcely affected the amount of work going through the shops of the American Bridge Company, as the percentage of work which this company erects has been growing less for some time. Many railroads have long preferred to do their own erecting and other roads have been following this practice more recently. The result is a minimum of disturbance from any labor demand which concentrates upon the American Bridge Company. In the past week work has been held up on a number of jobs in the hands of firms claimed to be receiving material from the American Bridge Company, strikes having been ordered by the Structural Iron workers in this city, Cleveland, Louisville and Cincinnati. The outlook for Structural business in the winter is good, judging from the amount of work on which estimates are now being made. Jobbers in Structural Material continue to get good premiums for Steel cut to length out of their yards. The expectation of increased output of Structural Steel due to the starting of the new mills at South Chicago and Clairton is not yet an appreciable factor in the situation, in view of the very large tonnage ahead of all the Structural mills. We quote the following minimum prices for tidewater delivery on shipments from mills: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. Beams 18 to 24 inches, 0.10c. extra; Angles over 6 inches, 0.10c. extra. Sales of Structural Steel out of stock have been made at 2.50c. and as high as 3c.

Plates.—The local market is inclined to dullness, as large buyers have their requirements well covered for the remainder of the year. Small orders are not sufficiently numerous to make their aggregate amount to any considerable tonnage. The Eastern mills are receiving an overflow of orders from Western consumers and are steadily getting into a sold-up condition, but it is still possible to place business at official prices. Quotations, at tidewater, for shipment from mills are as follows: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 1.94½c. to 2.04½c.; Fire Box Plates, 2.04½c. to 2.60c., according to specifications.

Bars.—Mills report business fully as active as during recent weeks. The great improvement in the Bar Iron trade is gradually bringing into operation more and more of the small rolling mills in the East which for one reason or another have been lying idle. Quotations are continued at 1.79½c. to 1.84½c., tidewater, for Bar Iron, and 1.64½c. to 1.84½c., tidewater, for Steel Bars.

Cast Iron Pipe.—Bids were opened in this city last week for 7800 tons of 48 and 60 inch pipe, but up to the present the contract has not been awarded. The city of Providence, R. I., on Thursday opens bids for 7000 tons of various sizes running up to 42 inches. This city will open bids for 30,000 tons next Wednesday. Business is coming out for the spring trade much earlier than usual. Buyers of Pipe are becoming strongly of the opinion that prices are more likely to be higher than lower next year. Buyers of small lots are still making purchases in spite of the cold weather, which might be expected to check outdoor operations. Carload lots continue to be quoted at $27.50 per net ton for 6-inch at tidewater for future delivery.

Old Material.—Inquiries for Steel Scrap are in hand aggregating 20,000 tons for delivery through the next three to four months. The going price for such Scrap is about $18, delivered at works in eastern Pennsylvania, but it is believed that if a holder of a good sized quantity would be willing to contract for future delivery it would not be difficult for him to get $18.50. The condition of the Steel trade is such that few if any holders of this class of Scrap are willing to contract for delivery after January 1 at present prices. Sales of Heavy Melting Scrap and Old Steel Rails aggregating 3000 tons are reported. A sale of 600 tons of Rerolling Steel Rails has also been made by a local railroad company to a dealer at about $16 on the line of the road. An effort is being made to counteract the tendency to higher prices on Steel Scrap by exaggerating the importance of the embargo which has recently been placed by railroad companies on shipments to one or two works in eastern Pennsylvania. The statement, however, is made on good authority that this embargo has not been caused by excessive shipments of Scrap, but of Coal. A noticeably heavy demand is observed for Cast Scrap and Stove Plate, among the sales reported being one of 1000 tons by a city merchant and one of about 600 tons by an outside merchant, the latter bringing $16 at a Hudson River point. Pipe Scrap is in strong demand. Borings and Turnings are selling quite freely, and at least 25c. per ton more can be obtained than last week. Sales are noted of 500 tons of Borings and 500 tons of Turnings. Old Car Wheels are in very active demand, and few are now to be had in this vicinity at any price. The whole market is very strong, and few of those now holding Old Material are willing to sell except at some advance over quoted prices. Quotations are approximately as follows for New York and vicinity per gross ton:

Old Iron Rails	$22.50 to $23.00
Relaying Rails	24.50 to 25.00
Old Steel Rails, rerolling lengths	16.50 to 17.00
Old Steel Rails, short pieces	16.50 to 17.00
Heavy Melting Steel Scrap	16.50 to 17.00
Standard Hammered Iron Car Axles	25.00 to 26.00
Old Steel Car Axles	21.00 to 22.00
No. 1 Railroad Wrought	21.25 to 21.50
Iron Track Scrap	18.50 to 19.25
No. 1 Yard Wrought, long	19.00 to 19.75
No. 1 Yard Wrought, short	17.00 to 17.75
Wrought Pipe	15.25 to 15.50
Light Iron	11.50 to 12.00
Cast Borings	9.25 to 9.50
Wrought Turnings	13.00 to 13.50
Old Car Wheels	17.50 to 18.00
No. 1 Machinery Cast	14.75 to 15.75
Stove Plate	11.75 to 12.75
Malleable Cast	15.25 to 16.25

Metal Market.

NEW YORK, November 15, 1905.

Pig Tin.—The local market advanced steadily from day to day by 5 point differences until Monday, when the high price for this movement was reached at 33.40c. On Tuesday the market reacted to 33.25c. This reaction was due not only to larger supplies arriving from the other side, but some of the weaker holders of metal were compelled to sacrifice their profit. The position is still strong and the London market is steadily advancing. Spot is quoted to-day at £152 and futures at £151 5s. The demand during the latter part of last week was fair, but so far this week has been very slow. The premium that holders here demanded for spot metal has now disappeared, due to the good sized arrivals of 1520 tons and the afloats of 2215 tons. A large cargo of 950 tons is expected to arrive on the 20th on the steamship Mesaba. Importers familiar with the situation express the opinion that the arrivals this month will be slightly below the consumption, indicating a further reduction of stocks.

Copper.—In sympathy with the general business situation, particularly in the Iron and Steel lines, all grades of Copper have advanced approximately ⅛c. a lb. to 16.62½c. to 16.75c. for both Lake and Electrolytic, and 16.25c. to 16.50c. for Casting Grades. These quotations hold good for shipments during the remainder of November, December and January. In London the market has steadily advanced from time to time, reaching the high quotation of £75 10s. for Standard Copper Warrants to-day. Futures are obtainable £3 lower at £72 10s. This premium for spot is a continuation of the squeeze which has been going on in that market for the past six weeks. Domestic consumption of Copper is large, and although no very heavy sales have been made to consumers in the Connecticut Valley during the week still they are taking the metal in good sized lots and are occasionally buying small lots outside of their regular monthly purchases. The export movement is small, amounting to but 6264 tons for the first 14 days of the month. This, however, has not so much bearing on the market as it might have had earlier in the season, on account of the exceedingly heavy domestic demand.

Spelter.—The market continues firm at unchanged quotations. St. Louis holders are selling the metal in small lots at 6c., and 6.12½c. is quoted for New York delivery. In the Ore market prices are unchanged, and there is a fair demand. Shipments have increased and the output has also been considerably larger. In London the market is slightly higher at £28 10s.

Pig Lead.—Holders of metal are in a position to demand good premium for spot shipments. A sale has recently been made for delivery this week at about 5.60c. for a lot of over 50,000 lbs. The quotation of the American Smelting & Refining Company for future shipment is 5.15c., New York. In St. Louis the market for spot is quoted at 5.20c. to 5.25c., and the London Exchange has likewise advanced since last week to £15 5s.

Antimony.—Business is dull and prices remain unchanged at 12.50c. to 13c. for Cookson's, 12c. to 12.50c. for Hallett's, and 11.50c. to 12.25c. for other brands.

Nickel.—There is no change in the prices for this metal, large lots selling at 40c. to 45c., and smaller quantities at 50c. to 55c. The principal holders have sufficient stocks on hand to meet the existing demands.

Quicksilver.—The old price of $40 per flask for flasks of 75 lbs. in 100-flask lots continues. Domestic orders in San Francisco are held on a basis of $39. In London Rothschild's price is £7 5s.

Tin Plates.—The situation is decidedly better at the mills. Several good sized orders have been booked during the past fortnight. The principal producer continues to quote 100-lb. IC Coke Plates on a basis of $3.40, f.o.b. New York and $3.30, f.o.b. Pittsburgh. The independent producers are endeavoring to advance quotations on account of the high price of Sheet Bars as well as the high price for Pig Tin. In Swansea Welsh Plates are unchanged at 12s. 9d.

Iron and Industrial Stocks.

NEW YORK, November 15, 1905.

The stock market underwent violent fluctuations during the past week, prices being depressed at times by high rates for call money, which touched 25 per cent., and at other times advanced by the exertions of strong pools whenever the money tension relaxed. On Friday quite a sensational advance occurred in Tennessee Coal, and at the same time considerably higher prices were realized on Sloss-Sheffield and Republic, the old report of a possible consolidation of these interests being made to do duty. Another stock which showed a violent advance during the week was Railway Spring common, which made a new high record of 61½ on Tuesday, the suggested reason for the advance being the report that the company is negotiating for the purchase of the Latrobe Steel Company. The high and low points touched by the active iron and steel stocks during the week, up to Tuesday night, were as follows: Allis-Chalmers common 18⅛ and 20⅝, preferred 59⅝ and 63; Can common 9¼ and 10⅛, preferred 69¼ and 71; Car & Foundry common 37¾ and 39¾; Locomotive common 64 and 68¾; Steel Foundries preferred 43½ and 45; Colorado Fuel 40⅞ and 44¼; Pressed Steel common 47¼ and 50, preferred 97 and 98⅝; Railway Spring common 53¾ and 61½; Republic common 23¼ and 25⅝, preferred 92½ and 96½; Sloss-Sheffield common 69½ and 76; Tennessee Coal 91⅛ and 97½; Cast Iron Pipe common 36¾ and 39¼; United States Steel common 35¼ and 36⅞, preferred 100¾ and 102⅝. These stocks showed buoyancy on Tuesday afternoon with somewhat greater ease in the rate on money and the improvement continued on Wednesday. Last transactions on active stocks up to 1.30 p.m. to-day were as follows: Can common 9⅜, preferred 70; Car & Foundry common 39½, preferred 100¼; Locomotive common 69⅛, preferred 114¼; Steel Foundries common 12⅛, preferred 45; Colorado Fuel 43; Pressed Steel common 49½, preferred 97¾; Railway Spring common 61¾, preferred 104¾; Republic common 25¼, preferred 94⅞; Sloss-Sheffield common 76; Tennessee Coal 96; Cast Iron Pipe common 39; preferred 93½; United States Steel common 37, preferred 102¼.

The Bullock Electric Company.—The holders of the preferred stock of the Bullock Electric Company of Ohio have been notified that the Bullock Electric Mfg. Company, the present lessee of the Bullock electric plant owned by the first named company, has obtained authority to issue a preferred stock, the holders of which are entitled to receive cumulative dividends at the rate of 6 per cent. per annum, payable quarterly commencing January 1, 1906. The preference is not only as to cumulative dividends, but also entitles the holders to receive from the net assets the full payment of the par value of the stock before anything is paid to the common stock. The Allis-Chalmers Company has agreed to guarantee the payment of these dividends at the rate of 6 per cent. per annum and to so indorse each certificate of stock. Under the present lease the rental is equal to the 6 per cent. dividends that have been paid upon the outstanding preferred stock, but there is no fixed provision for other income to meet the expenses of the organization and corporation taxes that must be provided for. Moreover, this rental is for a fixed period of about 23 years only, whereas the guarantee of dividends by the Allis-Chalmers Company is without limitation of time. As a part of the transaction the Allis-Chalmers Company has conveyed to the Bullock Electric Mfg. Company the Norwood foundry property, which has been heretofore acquired and substantially improved by the Allis-Chalmers Company. The entire Board of Directors of the Bullock Electric Company has approved the agreements that have been made in this connection and have exchanged all their preferred stock of the Bullock Electric Company at par (share for share) for the guaranteed preferred stock of the Bullock Electric Mfg. Company, and have effected an arrangement whereby all other holders of the preferred stock of the Bullock Electric Company may avail themselves of the same privilege at any time on or before December 12, 1905, by presenting their certificates at the office of the Cincinnati Trust Company, Cincinnati, duly indorsed for delivery, where the exchange will be made.

Dividends.—The Wheeling Mold & Foundry Company, Wheeling, W. Va., recently declared a quarterly cash dividend of 2 per cent.

Railway Steel Spring Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable December 20.

New York Pig Iron Warrant Market.

The sale of pig iron warrants and pig iron warrant certificates in the Produce Exchange during the week ending at noon Wednesday amounted to 1600 tons, the majority of the sales being for warrants, and materially higher prices were established over last week. The transactions were as follows: 100 tons of February regular, $17.50; 100 tons December regular, $17.10; 100 tons March regular, $17.50; 100 tons November foundry, $17.10; 200 tons February regular, $17.50; 100 tons March foundry $17.60; 100 tons February foundry, $17.50; 100 tons February regular, $17.50; 200 tons Cash Alabama No. 2, $14; 100 tons March Alabama No. 2, $14.25; 300 tons Dayton mottled, $11.60; 100 tons Alabama No. 2, December, $14. The following prices were established on call Wednesday noon:

	Regular.		Foundry.	
	Bid.	Asked.	Bid.	Asked.
Cash	$16.75	$17.50	$16.90	$17.40
November	16.80	17.50	17.00	17.25
December	17.10	18.00	17.10	18.00
January	17.20	18.00	17.25	17.75
February	17.40	....	17.50	17.80
March	17.25	....	17.25	17.70

Temple Furnace of the Temple Iron Company, at Temple, Pa., was started November 8.

Revival of the Ferroalloy Issue.

WASHINGTON, D. C., November 7, 1905.—The Treasury Department is preparing to reopen the long standing controversy which it was thought was brought to a conclusion by the decision of the United States Circuit Court of Appeals, handed down last March, with regard to the dutiable classification of certain ferro alloys, including ferrochrome, ferrotungsten, ferromolybdenum and ferrovanadium. The Court of Appeals, which affirmed the court below and also the Board of General Appraisers, held these alloys to be dutiable by similitude to ferromanganese at the rate of $4 per ton, and not as metals, unwrought, at 20 per cent. ad valorem. The Department acquiesced in this decision, as the evidence was clearly in favor of the contention of the importers and because it did not seem practicable to obtain testimony in support of the Government's position.

The manifest incongruity of assessing on these products a rate of duty averaging less than 1 per cent. ad valorem has since been urged upon the attention of the Department by domestic manufacturers of these alloys, and these representations have been emphasized by the statement in the annual report of the United States Geological Survey covering the production of steel hardening metals in 1904 that the development of large deposits of these metals has been adversely affected by the decision of the court levying upon them a duty which affords absolutely no protection. Representatives of the domestic manufacturers, especially of ferrochrome, have urged the Department to make a new case, and have expressed confidence in their ability to produce evidence in support of the proposition that these products are not properly dutiable by similitude to ferromanganese, but that they are in point of fact unwrought metals and should be classified as such. While it is admitted that a duty of 20 per cent. ad valorem, which would then be imposed, is very low, considering the amount of labor involved in the production of these metals, it is pointed out that the assessment of that rate will enable the manufacturers in this country to continue in business, while a duty of $4 per ton will force them to suspend operations.

The Government's chief claims in connection with a new case will probably be, first, that these products are unwrought metals, notwithstanding the claims of the importers that they cannot be wrought into any other commercial form; and, second, that their function in steel making is so different from a chemical and metallurgic standpoint from that of ferromanganese that the principle of similitude cannot properly be invoked.

The Government hopes to show that ferromanganese is a universal purifying agent in the manufacture of all commercial steel and that while it is also used to a very small extent as an addition to commercial steel to make what is known as special manganese steel, such use is unimportant and should not control classification. Ferrochrome and the other ferroalloys in question, however, are added to steel to secure certain qualities which cannot be obtained with the use of ferromanganese and which are totally different chemically and metallurgically.

The Department has not yet selected an importation to form the basis of a test case, but will probably do so at an early date. W. L. C.

Worth Brothers Company, Coatesville, Pa., have completed the foundations for another 132-inch plate mill which it is hoped to have in operation early in the coming year. The old 132-inch mill will then be overhauled and converted into a mill for rolling narrower plates. When these improvements are completed the company will have the facilities for producing a complete line of plates from the widest heavy plates rolled in this country down to the widest light plates.

The Eastern Steel Company, Pottsville, Pa., has started its 19-inch mill on double turn and is rapidly completing the furnaces for its 28-inch mill.

The National Founders' Association.

Opening Session of the Ninth Annual Convention.

The ninth annual convention of the National Founders' Association began its sessions at the Hotel Astor, New York, on Wednesday morning, November 15, 1905, with every promise of one of the most successful meetings in the association's history. The action taken by the association at its Cincinnati convention last year in abrogating the "New York Agreement" with the Iron Molders' Union and the progress made in the year in carrying out the open shop principle have solidified and strengthened the membership and brought into it a number of strong foundries whose proprietors had never sanctioned the closed shop, and there are to-day 500 foundries represented in the association, the number of separate firms and corporations (including several important consolidations) being reported as 457 on October 1.

As is customary the administrative council of the association was in session for two days preceding the convention, members of the council gathering at the Hotel Astor for their first meeting on Monday. An important matter laid before the council was the report of the committee appointed some months ago to confer with a similar committee of the National Metal Trades Association to discuss a basis of co-operation between the two associations. The initiative was taken at the Chicago convention of the National Metal Trades Association in March, 1905, when a committee of three was appointed on this subject, with a request that the administrative council of the National Founders' Association appoint a similar committee. The report of the joint committee was laid before the administrative council of the National Metal Trades Association at Cincinnati in October and first came before the like council of the National Founders' Association at the Hotel Astor on Monday. The recommendation of the council on the matter will form one of the most important matters of discussion on the convention floor.

The committee that has had under consideration plans for a closer union of the two associations consists of the following: For the National Metal Trades Association—F. A. Geier, Cincinnati Milling Machine Company, Cincinnati; F. K. Copeland, Sullivan Machinery Company, Chicago; M. H. Barker, American Tool Works Company, Boston. For the National Founders' Association—William H. Pfahler, Abram Cox Stove Company, Philadelphia; John L. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind.; James McNaughton, American Locomotive Company, Schenectady, N. Y.

"Alumni" Dinner.

An important event in connection with every convention of the National Founders' Association is the banquet held on the night preceding the opening session and attended by officers, ex-officers and members and ex-members of the administrative council. The banquet of Tuesday night was marked by a record attendance, 42 being present. There were no formalities, but instead a general discussion of topics under the general head of good of the order. Past President Isaac W. Frank presided and called out as speakers O. P. Letchworth, Pratt & Letchworth Company, Buffalo; Stanley G. Flagg, Jr., Stanley G. Flagg & Co., Philadelphia; T. J. Drummond, Montreal Pipe Foundry Company, Montreal, Que.; W. D. Sayle, City Foundry Company, Cleveland; F. T. Towne, Yale & Towne Mfg. Co., Stamford, Conn.; Edgar McDougall, John McDougall Caledonian Iron Works Company, Montreal, Que.; C. Bermingham, Canadian Locomotive Company, Limited, Kingston, Ont.; Antonio C. Pessano, Great Lakes Engineering Works, Detroit; William H. Pfahler, Philadelphia. The questions discussed related to wages, the nine-hour day, the open shop and the details of the proposed plan for closer co-operation between the National Metal Trades Association and the National Founders' Association, which it is estimated will work a

saving of a good many thousands of dollars in administrative expenses. A new matter that was touched on by a number of the speakers was the status of the union of foundry helpers. Heretofore only molders and coremakers have been taken into account in levying for dues. The question now comes up whether the association should now undertake to protect its members against strikes from foundry helpers and have its per capita assessments cover those workers also.

OPENING SESSION.

The banquet room of the Hotel Astor was well filled at the opening of the Wednesday morning session, about 175 members having registered up to that time. The president, Antonio C. Pessano, called to order and cordially welcomed those present. Two committees were appointed—a resolutions committee, on motion of V. M. Moore, of the Chisholm & Moore Mfg. Company, Cleveland, and a press committee, on motion of H. N. Covell, of the Lidgerwood Mfg. Company, Brooklyn. The Resolutions Committee consists of H. N. Covell, Brooklyn; Isaac W. Frank, United Engineering & Foundry Company, Pittsburgh; H. W. Wendt, Buffalo Forge Company, Buffalo A. J. Caldwell of New York was constituted the Press Committee.

President's Report.

President Pessano then read his report, which was an able review of the work of the year and a discussion of the issues which had claimed special attention in that time. With such cogency and directness were the president's comments made that he was interrupted at intervals with emphatic applause. Space will be given in our next issue to liberal extracts from the report. One subject that naturally had much attention was the action of the last convention in abrogating the "New York Agreement." Not only had there been no loss in membership as the result of that action, but in the year 78 firms representing a capitalization of $8,000,000 had been added. The report referred to the changed trade conditions of the past year and expressed the hope that as foundrymen operating jobbing shops better understood each other unintelligent bidding would be lessened. The rise in raw material values this year had presented problems calling for most careful management. The speaker suggested that the jobbing and machinery founders might profitably follow the example of the malleable, steel casting and other manufacturers in seeking to reduce the effects of unintelligent competition. The education of apprentices, the organization of foremen's clubs after the Erie, Pa., plan, the organization of an effective working force under the employ of the association, the proposed scheme of cooperation with the National Metal Trades Association, the association's efforts for the detection and punishment of criminal operations in connection with strikes, the new issues raised in labor demands of the year—these and other topics were touched on by the president. Concerning the association's own working force, he said that it had been steadily strengthened and that the time was not far distant when it would be possible for the association to man with its own employees the largest foundry in its membership within twenty-four hours.

Treasurer's and Secretary's Reports.

The financial report of the association's treasurer, the State Savings Bank of Detroit, was presented by W. D. Sayle. It showed the strong condition of the treasury and the gain made in the past year.

The secretary, F. W. Hutchings, who has had charge of the association's offices in the past year, presented a report which showed excellent work in the handling of that department.

Commissioner's Report.

The commissioner, O. P. Briggs, was vigorously applauded on rising to present his report. He went thoroughly into the issues which the new departure made by the association a year ago had pushed to the front. He brought out strongly the advance made by the association in the year, and pointed out that in the same time the membership of the Iron Molders' Union had fallen off greatly and its finances had been seriously depleted. The chief recommendations of the commissioner were the following: The continuance of the present plan of employing molders under contract with the association; the establishment of branch offices in the East and in Chicago for more promptly responding to calls in those sections; the employment of a larger force of field men; the giving of more attention to apprentices, also to the skilled workmen, who, in the speaker's opinion, should be protected against the minimum wage "principle" which under union control had operated greatly to the detriment of such men; the protection of all honest, law abiding, faithful employees against violence and intimidation, even where the municipal authorities are indifferent to such protection.

Before the adjournment of the morning session a statement concerning the Philadelphia strike was made to the convention by Ex-President Isaac W. Frank, by Stanley G. Flagg, Jr., vice chairman of the third district, and by several Philadelphia members. A resolution was passed by a *viva voce* vote strongly indorsing the position the Philadelphia foundrymen have taken in refusing the recent demands of the union coremakers and pledging the full support of the association in the strike now in progress.

A Large Gas Tank.—The Milwaukee Gas Light Company celebrated the completion of its mammoth new gas tank November 6 by entertaining at its west side plant a party of 65 Milwaukee newspaper men. This is the largest gas tank so far erected in America and the second largest in the world. The only one exceeding it in size is that at London, England. The Milwaukee tank was erected by the Riter-Conley Mfg. Company, Pittsburgh, and is 210 feet high, 225 feet 9 inches in diameter, with a capacity of 6,000,000 cubic feet of gas. On October 26 the water tank was filled with 10,000,000 gallons, weighing 42,000 tons. A much larger tank is now building at Astoria, Long Island, for supplying New York City with gas, which will have a capacity of 15,000,000 cubic feet.

All records of the Bessemer & Lake Erie Railroad, owned by the Carnegie Steel Company, Pittsburgh, for ore tonnage hauled in one year have already been broken by this year's shipments. The largest previous shipments of ore tonnage hauled by the Bessemer & Lake Erie Railroad was last year, when 4,087,000 gross tons were brought down from the lakes and hauled over this road. The figures for this year up to November 1 show an increase of over 313,000 tons above the total for all of 1904.

The Central Iron & Steel Company's plate mills at Harrisburg, Pa., completed the largest six months' run in their history this month. A total production of 70,600 gross tons was rolled. The entire plant, including blast furnaces and steel mill is now in full operation.

The Harrisburg Rolling Mill Company is now rolling bars at its mill at Harrisburgh, Pa. The change was made early in the month and the operation has been very successful.

Terre Haute, Ind., voted at the recent election in favor of a municipal electric lighting plant. The city is now lighted through a temporary arrangement with a local traction company, whose franchise for public lighting expired about a year ago.

The promise of a bumper crop of corn this year has been fulfilled. The Department of Agriculture places the figures at 2,707,993,540 bushels, this quantity being considerably in excess of the yield in any former year.

It is stated that the current business of the Westinghouse Electric & Mfg. Company for October, exclusive of the large contracts booked during the month, was the largest for any October in the history of the company.

The Machinery Trade.

NEW YORK, November 15, 1905.

Since the first few months of the year the demand for machine tools has steadily increased, and according to one of the largest manufacturers the prospects are good for a continuance of the present heavy business for months to come. During the past week or two no large orders are reported closed, though several ranging from $10,000 to $20,000 have been placed. In the absence of large orders, which usually buoy the market up, the machine tool trade at present is extremely heavy, manufacturers as a rule having all the business they can handle with the present facilities. As a consequence of the steady buying the trade has settled down to a sound basis and prices are stiffening. The large volume of scattered business is very advantageous to the tool builder, in that it extends his list of customers, paving the way for future business, and enables him to get good prices. At this writing very few projects of good proportions aside from the tunnels have progressed to the point where machinery purchases are being considered, and it is unlikely that any of them will come to a head before the first of the year. At various points throughout the country important new construction is being planned for next year. If plans now under consideration go through an important smelting interest will soon purchase very large quantities of mechanical equipment.

There has been a noticeable rush on the part of German companies who have been buying machinery in this country to get orders placed and deliveries made before the new German tariff law goes into effect. As a result, German houses that act as commissioners in this country purchasing machinery for manufacturers there and houses that export machinery from the United States into Germany are buying extensively. It is not probable that all the orders German interests desire to place in this country can be distributed between now and next March when the law goes into effect, but a large part of the business will be carried out. A representative of a well-known German house that purchases a large amount of machinery in this country said this week that his firm is doing an unprecedented business as a result of the passing of the law, but he declared that the interests he represents will be affected in an opposite way when the law goes into effect and profits will be curtailed to an extent.

Joseph J. Jarisch of Lodz, Russia, was in New York this week establishing connections with the machinery trade with a view to selling American made goods in his country. He has had some little experience in this country as a salesman, and he declares that prospects are bright for a good American trade in Russia later on. He will sell the Dangler Stove Company's goods on the other side as well as general machinery of American make.

American machinery men still show a disposition to hold Russian shipments, and they are taking orders only on certain conditions imposed to suit the present situation in that country. Cable orders continue to arrive from the other side asking manufacturers to delay shipment of goods that have been ordered.

Consul White of Hanover reports that Dr. Robert Grimshaw of Fundstrasse, No. 30, Hanover, Germany, desires quotations on wire working machines.

Many of the railroad companies have been planning for some time to electrify their roads for suburban travel, and some of the plans are so far matured that the companies are about to begin work in changing motive power from steam to electricity. It is announced that the Pennsylvania Railroad Company has decided to go ahead with its plans to electrify the West Jersey & Sea Shore Railroad to Atlantic City, and some of the suburban lines out of Camden. Samuel Rea, third vice-president of the company, is chairman of the special committee having the matter in charge.

It is understood that the Long Island Railroad Company is preparing to extend the electrification of its road.

It will be of interest to note that the Acme Lathe & Products Company, Limited, Manchester, England, which has for the past 12 months been manufacturing the Simplex four-spindle automatic screw machines, for which it is the sole owner of patents for the United States, Canada and European countries, is making arrangements to have its machines manufactured in the United States.

National Machine Tool Builders' Association to Hold Special Meeting.

A special meeting of the National Machine Tool Builders' Association is to be held in New York within the next two weeks, the exact date of which has not yet been determined. We understand that the purpose of the meeting is to further consider the question of an advance in prices, but it is believed an important feature will be the ratification of a joint agreement decided upon between the dealers and manufacturers which has been submitted by letter to the members of the National Machine Tool Builders' Association and the National Supply and Machinery Dealers' Association.

The Colburn Machine Tool Company, Franklin, Pa., has advanced prices on all sizes of boring mills from 3 to 7½ per cent.

Machinery Requirements.

Preliminary estimates are being received by Milliken Brothers, 11 Broadway, New York, on about $1,000,000 worth of equipment for the proposed new steel plant the company is considering erecting on Staten Island. It is understood that the nature of these bids will determine as to whether the company will go ahead and build the plant which it has had under consideration for some time. Bids are being submitted by a number of New York machinery houses, and if the firm decides to build the decision will assure some of the bidders of a substantial piece of business.

The immediate need of new equipment, made necessary by the press of business, for the Pennsylvania Railroad Company, is emphasized by purchases which have been recently made. The locomotive crane people had their stock depleted quickly by purchase of four 10-ton cranes which were ready for immediate delivery, and these were sent to various points on the Pennsylvania Railroad system where the congestion of cars is most severe and the necessity for quick handling equipment the most urgent. In connection with the operation of the cranes, the experiment will be tried with the three large gantries at Greenville in the use of a lifting magnet of 500 volts, direct current, which it is expected will accomplish much good by the handling of steel plates and other material of this kind. The purchasing department will issue inquiries for the following, upon all of which delivery is a big factor:

One 12½-ton three-motor electric traveling crane for indoor service, 42-foot span; sewer cleaning machine and necessary appliances for working same; one 40-inch horizontal boring, drilling and milling machine; one 100-inch vertical boring mill, to be equipped with checks for holding driving wheel tires; three 6-foot plain radial drills, with gear drive and gear feed, direct driven by a 220-volt direct current motor, machines to have a square table in addition to the slotted base; one 34-inch standard turret lathe, together with outfit of tools.

W. M. Greenwood, 114 Liberty street, New York, is doing considerable buying just now for the Havana Central Railroad Company, which is building a network of tracks from the city of Havana as a central point to outlying towns in Cuba. The company is laying 120 miles of single track, and the line will be for freight and passenger service, but it will be mainly used to transport perishable products to Havana, where a dock is being constructed by the company. Heretofore the fruit has been conveyed to Havana by wagon and loaded on vessels with small boats. In addition to equipping the railroad and a power house and machine shop the company will purchase machinery for unloading the fruit and other products from cars and loading it on steamers. It is understood that a large machine shop will be built and later on the system will be extended. The company maintains its main offices at 52 Broadway, and C. W. Van Voorhis is the secretary and treasurer. Lawrence Turnure & Co. of 50 Wall street, New York, are the financial agents.

As a result of the incorporation of the Owens European Bottle Machine Company there will be considerable machinery purchased in this country to equip the proposed new plant the company is to build in England. The company was organized to develope the Owens bottle machine in Europe on the lines that it has been developed in this country by the Owens Bottle Machine Company, Toledo, Ohio, at which place the headquarters of the new company will be located. The plant which the company intends to install in England will be put in operation this coming year, and the equipment will be of similar type to that used in the American plant of the parent company, and the larger part will be furnished from this country. The company is not prepared to state just what machinery it will require, as the matter has not yet been definitely decided. This will be taken up a little later. Following the completion of the new plant, plants will be erected in other countries in Europe. The officers of the European company are: E. D. Libbey, president; Clarence Browne, vice-president, and W. S. Walbridge, treasurer. Messrs. Libbey and Walbridge are president and treasurer, respectively, of the Owens Bottle Machine Company. The directors consist of parties in this country and in the various countries abroad where the machines are to be installed and are made up almost entirely of practical glass men.

Considerable new machinery will likely be purchased before very long by the Enterprise Wire & Iron Works, Baltimore, Md., which is owned by John F. Deal & Sons. This company has recently purchased a plot of ground 160 feet square on Montford avenue and the Pennsylvania Rail-

road upon which it intends to build a new structure 50 x 160 feet. The present equipment will be largely increased by the installation of modern electrically driven machinery for the manufacture of wire and ornamental iron work.

The Touhill Iron Works, which is moving its plant from Pottstown to Scranton, Pa., is buying considerable machinery just now for the equipment of its new plant. The buying is being done from Scranton and the purchases include equipment for a large new foundry the company has constructed.

The Schmidt-Wilkes Electric Company, Hoboken, N. J., is preparing plans for the erection of a new plant at Weehawken, N. J. The company expects to have the plant in operation by January 1, equipped with modern machinery for the manufacture of telephones, switchboards, &c.

The Vermont Farm Machine Company, Bellows Falls, Vt., has taken out a license to manufacture separators in Ontario, Canada, and it is possible that a plant may be established.

The C. T. Williamson Wire Novelty Company is erecting a three-story brick factory adjacent to its plant at Newark, N. J. Power will be supplied for the structure by a Watts-Campbell Corliss engine of 100 horse-power, and the boiler, which is of 120 horse-power, has been built by McEwen Brothers from designs furnished by the Hartford Steam Boiler & Inspection Company. The company will in all probability need additional machinery equipment for fitting out the factory, which will be ready about January 1.

It is probable that contracts for machinery equipment for the hydraulic power plant to be erected on the Tennessee River to furnish electric power for the city of Chattanooga will be closed within the next six weeks. The operations which are being carried forward by the Chattanooga & Tennessee River Power Company are well under way and John Bogart of 16 Exchange place, New York, is the engineer in charge, directing both the construction of the plant and its equipment. The United States Government is erecting a lock and dam at the point where the plant is to be located. Preliminary operation has been commenced on the power station. The plant will be from 30,000 to 40,000 horse-power, and plans show that it will be located about 33 miles from Chattanooga by river. It will be but 12 miles from the city in a direct line. The power house will be adequate for 14 units of 3000 kw. each, and there will be a transmission house and other buildings. The power plant will be 60 x 300 feet and 57 feet high. The plan to harness the river has been in view by progressive manufacturers of Chattanooga for years. C. E. Janes and J. C. Guild of Chattanooga have been promoting the scheme and have interested New York capital in it. Work on the plant will be rushed, it is said, and it is expected that it will be completed by spring. It is more than probable that New York firms will capture a large majority of the orders for power equipment, as specifications will be given out from Mr. Bogart's office and contracts will be awarded there.

The firm of A. Hollanders & Sons, fur dyers, Newark, N. J., is contemplating changes in its factory, which will necessitate the installation of some new machinery. The present boiler and motive power will be abolished, and a new 125 horse-power steam boiler will be installed with steam feed pump and feed water heater. An 80-horse-power boiler will also be installed together with a 25-kw. generator for lighting purposes. Motors will be installed to run machinery distant from the shafting. Nathan Myers of Newark is the architect who has charge of the improvement.

McClave, Rimmer & Co., 85 Liberty street, New York, have been awarded a contract for a 300 horse-power dynamo for the Maltby colliery of the Lehigh Valley Coal Company.

The London firm of J. G. White & Co., Limited, which is the British connection of J. G. White & Co., engineers, 43 Exchange place, this city, has been awarded a contract for the construction of a number of miles of track for the London City Council, which will cost almost $1,000,000. Tenders will shortly be invited by the London City Council for the reconstruction of its northern system for electric traction. This work will entail the outlay of large sums of money, and it is understood that American interests in England are preparing to bid for the work. Two new car barns and three substations will be built, and in all probability the reconstruction of the system will entail the erection of machine shops also. The undertaking is said to be one of the largest of the kind ever attempted in Great Britain. The total estimated cost of the project will, it is estimated, amount to $4,000,000.

Owing to the rapidly increasing Southern business of the past year the De La Vergne Machine Company, New York, has established a branch agency at Atlanta, Ga., which will cover the States of North Carolina, South Carolina, Alabama, Florida and Georgia. This agency will handle business connected with the three lines of machinery manufactured by the De La Vergne Machine Company—viz., refrigerating and ice making machinery, Hornsby-Akroyd oil engines and Koerting gas engines. Its representative will be W. M. Hargreaves and the office will be located at 510 Candler Building.

Philadelphia Machinery Market.

PHILADELPHIA, PA., November 14, 1905.

The demand for machinery and tools continues to increase, and both manufacturers and merchants have taken on a larger volume of business during the past few weeks, not as large, however, as would have been transacted had it been possible for manufacturers to make deliveries as promptly as customers desired.

The matter of deliveries is rapidly becoming quite a serious problem. In many instances they are becoming harder and harder, week after week, and six months' deliveries on some classes of tools are not at all uncommon. The buyer of tools therefore requiring prompt shipment must, if he cannot possibly wait for the extended delivery, purchase tools not altogether suited for his purpose or purchase a second-hand tool to serve his immediate requirements.

Inquiries are coming out in greater number, and some concerns have as much as they can do to take care of the demand with their present forces and equipment. Most of the business placed continues to cover only a small number of tools, the volume of orders making up what they lack in individual size.

Tools of all classes and sizes seem to be in active demand. Builders of heavy machine tools have their capacities fully taken and can furnish tools only on extended delivery, while manufacturers of the smaller lines of tools and machinery have a largely increased volume of business on their books and in some cases find it as hard to make deliveries as do the makers of heavy tools.

Prices of many classes of machine tools have been advanced. In most instances the increase has been about 5 per cent., and has been made by manufacturers both in and outside the association, the cost of raw materials being given chiefly as the reason for the advance.

Boilers and engines are in better demand and sales of a number are to be noted, particularly in the higher powers. For the lower power types, say under 50 horse-power, the demand is weak, the sale of gas and gasoline engines cutting into this field quite extensively.

The foundry trade is active, but many of the makers of gray iron castings are handicapped by labor difficulties. Some of the foundries are being operated with reduced forces and find it difficult to turn out work with any degree of promptness. Steel foundries are unaffected by these troubles and have more work on their books than can be conveniently handled.

About the most important matter before the machinery trade is the list of machinery equipment for shop 4 of the Bethlehem Steel Corporation, South Bethlehem, Pa. The specifications cover a very general line of both large and small tools, which will cost in the aggregate about $100,000.

The elevation of the grade tracks of both the Pennsylvania and Philadelphia & Reading railroads, the former in the northeastern and the latter in the northeastern and north central portions of the city, is commanding considerable attention. Plans for this work have been prepared by both companies, but have not entirely met with the approval of the city authorities. It was expected that some active progress would be made in the removal of these tracks before this, but action was delayed owing to the recent local election, which, among other things, resulted in a favorable majority for the creation of a $4,000,000 loan to apply on the city's share in the cost of the work of abolishing these grade crossings. The Pennsylvania Company has already invited bids for the work according to its plans, and it is expected that it will not be a great while before some definite action will be taken by the Reading Railroad.

The city of Philadelphia has awarded to the Coatesville Boiler Works, Coatesville, Pa., the contract for ten 250 horse-power internally fired boilers, known as the "City of Philadelphia type," for installation at the Belmont filtration plant. Delivery on these boilers is to be made in five months.

The Zephyr Ventilator Mfg. Company, manufacturer of the Philadelphia radial lamp holder, has appointed the Northern Lamp Company, Malden, Mass., exclusive agents for these lamp holders in the New England States. The demand for this apparatus has been very large, particularly for machine shop use, by attaching same to lathes, planers, drill presses, &c., and several large plants in this city are now being equipped by them. A large number have also been sold for drafting room and general desk purposes.

I. H. Johnson, Jr., & Co., Incorporated, has taken on a good volume of business and finds a large demand for its lathes. Orders recently have been mostly for tools of the larger sizes and heavier types, although the demand for small lathes does not appear to have diminished. All departments of the plant are very busy and enough work is on th ebooks to keep them so engaged for a number of months. This concern recently shipped the United States Government a 56-inch lathe with 18-foot bed for the Ordnance Department, Washington, D. C., and has also delivered a number of heavy lathes to local parties. Shipments have also been made to parties in the Pittsburgh district and to a number of Eastern steel plants.

The Philadelphia Roll & Machine Company notes an increased demand for charcoal iron castings, rolls, both chilled and sand cast, and for mill machinery, and is running a large part of its plant on extra time to keep up with the work on hand. Among recent orders was one for a 20-inch sheet mill, complete, with housings, and two sets of rolls. Another was for two complete tin plate mills with two sets of rolls, while orders for rubber mill machinery and rolls have also been received.

Frank Toomey, machinery merchant, will equip the new plant of the Crucible Flake Graphite Company, Chester Springs, Pa., with a 300 horse-power Corliss engine, boilers, pumps and general power equipment. Two 125 horse-power horizontal tubular boilers have also been furnished parties in Phœnixville, Pa., and two 250 horse-power Berry boilers have been supplied an Elkton, Md., concern. Boilers and engines have also been shipped two ice storage plants in Shenandoah Valley, Pa. Mr. Toomey reports a good demand for engines and boilers, but that for machine tools would stand considerable improvement.

The Tabor Mfg. Company notes a very heavy demand for molding machines, coming from all sections of the country. Orders have been taken for a number of split pattern machines, one 21 x 30 inches, of the power ramming type, being for export. Twelve power ramming machines are to be furnished parties in Massachusetts, New Jersey and Pennsylvania, while six 14 x 16 and two 13 x 18 inch split pattern machines have been ordered by various concerns. Six 16-inch power rammers are to be furnished parties in both the East and Middle West, while three 24-inch square rockover machines and a 12-inch jar ramming machine are to be supplied a Pennsylvania foundry. Four 14-inch square and two 12-inch square Draper Tabor machines will also be supplied customers in the New England States. The demand for Taylor-Newbold cold saws, the Tabor Company advises us, is increasing rapidly. Orders for a number of 20, 22, 24, 26, 30, 33, 36, 38 and 40 and one 60-inch saw, together with grinding attachments, are to be noted. Many of these will be delivered local parties, while others will be shipped to parties in all sections of the country.

The Harlan & Hollingsworth Corporation launched on the 11th inst. two ferry boats, the Cranford and Somerville, built for the Central Railroad of New Jersey. These two vessels are the seventh and eighth, respectively, that have been built for the Central Railroad of New Jersey by the above firm. Their dimensions are: Length over all, 207 feet; breadth of hull, 44 feet; depth, 17 feet 4 inches. They will be of the double screw and double deck type, with landings from each deck. The engines will be triple expansion, four cylinders, 19, 30, 35 and 35 inches, and 30-inch stroke, by having a continuous shaft with a screw at either end. Each boat will have three boilers of the gunboat type, 175 pounds pressure. The fittings will be the latest and will include complete electric light plants.

Chicago Machinery Market.

CHICAGO, ILL., November 14, 1905.

Notwithstanding the heavy railroad purchases of machine shop equipment this fall, both for renewals and new installations, the bulk of the tools sold by Western dealers during the recent period of activity has gone into the smaller shops throughout the West and Northwest. This indicates that the improvement in trade has been general and has reached even the smallest manufacturer whose increase in orders compelled him to increase his capacity. Nor have the railroad purchases been small by any means, the aggregate placed thus far being considerably larger than during the same period in previous years. Present indications point to a general falling off of railroad buying the remainder of the year, although a few roads are in the market for tools which they will place immediately if they can secure prompt shipments. The unplaced portions of lists of the Chicago & Northwestern, the 'Frisco and Great Northern roads will not be closed until after the first of the year. There are a few large industrial projects under way outside of the erection of additions to the plant of the Allis-Chalmers Company, Milwaukee, and there is little likelihood now of this big list being closed before the advent of the new year. On the other hand, the demand for equipment for small shops continues heavy and the store trade, as reported by dealers on Machinery Row, is unusually heavy. Judging from the heavy demand for small motors for machine tool drives, the replacement of the belt drive for this individual system is going on apace in the shops throughout the West. Manufacturers of motors are unable to keep a stock of assorted sizes and are operating their plants night and day to meet the demand.

Demand for boilers and heavy duty engines is light, as is customary at this season of the year. The contracts for the power installations of a number of large buildings now under way in this city have not yet been let, including the plant for the city building, which promises to be pretentious. There is no abatement in the demand for second-hand machine tools owing to the inability of the machine tool manufacturers to make prompt deliveries. Several manufacturers of wood working tools in the Central West have already made advances on their respective lines averaging 5 per cent. The advance on milling machines made several weeks ago has not generally been followed by the builders of lathes, planers and other universal machines, although several Western manufacturers of drills have advanced the prices on some sizes as high as 10 per cent.

The Armstrong Brothers Tool Company, Chicago, manufacturer of the Armstrong tool holder, ratchet drills and cutting off machines, is now located at its new plant on North Francisco street. The site is an excellent one, providing adequate shipping facilities, as it adjoins the Chicago & Northwestern Railroad. The main building is 60 x 175 feet, three stories and a basement, and of standard mill construction. A one-story annex 30 x 175 feet is used as a grinding and annealing room. The offices as well as the assembling departments are located on the first floor of the main building and the machine shop occupies the other two floors. The site provides considerable room for expansion, having a frontage of 216 feet on Francisco street and 198 feet adjoining the tracks of the Chicago & Northwestern Railroad.

The Union Pacific Railroad Company will add to its shop facilities a new blacksmith shop, engine stripping shed and iron house. W. R. McKeen, Jr., Omaha, Neb., is superintendent of motive power and machinery.

The Lees Machine Works, Owensboro, Ky., will buy new machinery equipment.

The Hawkeye Zinc Mine Company, Joplin, Mo., will build a 150-ton concentrating plant. Equipment will be purchased.

The American Zinc & Chemical Company will build a zinc ore reduction plant at Denver, Col., having a capacity of 50 tons. Plans are now under way for the equipment to be installed. Alfred J. Diescher is general manager, with offices at Denver.

The Metal Furniture Company, Evansville, Ind., is in the market for two cupolas.

Wood, Smith & Co., Chicago Heights, Ill., are in the market for a 16 x 54 inch horizontal tubular boiler.

New England Machinery Market.

WORCESTER, MASS., November 14, 1905.

Conditions have changed but little during the past week, excepting that complaints of delivery on the part of customers are becoming more frequent, freight is slower because of an increasing congestion of traffic and skilled labor in every line of manufacture outside of as well as in the metal lines seems to become more scarce.

The Chapman Valve Mfg. Company, Indian Orchard, Mass., is to make important enlargements to its plant. A new foundry will be 150 x 250 feet, and a building for storage and shipping purposes will be 130 x 300 feet.

The National Wire Corporation, New Haven, Conn., is progressing rapidly on the improvements which will greatly increase the capacity of the works. A new galvanizing building, 125 x 250 feet, will give the company five times its present output for that line of product. Other smaller buildings are being erected for special purposes. A large part of the space devoted to hospital and club room has been converted into a machine shop, an emergency hospital room being retained. Much additional wire drawing machinery in addition to nail machines is being installed. The general capacity will be practically doubled.

The New Haven Silver Company, New Haven, Conn., has taken the building at North Haven, known as the Stevens factory, and will occupy it for the manufacture of Craig metal ware, which is similar in appearance to silver ware. The company is a Connecticut corporation, with authorized capital stock of $200,000. The officers are: President, Benjamin Slade; vice-president, Samuel Goodman; secretary, Charles Freedman; treasurer, Max Strauss. The company has the machine equipment for beginning business, but expects to add new tools later. The metal employed is the invention of A. M. Craig, New Haven.

The Connecticut Computing Machine Company, New Haven, Conn., of which Col. Rollin S. Woodruff of C. S. Mersick & Co., New Haven, is the leading spirit, and with which prominent manufacturing interests are identified, has not yet completed its plans for manufacturing, but it is pretty well decided that the factory for the manufacture of the computing machine will be located in New Haven.

The Whitcomb-Blaisdell Machine Tool Company, Worcester, Mass., announces an advance in prices on its line of planers averaging about 7 per cent. The increase is not on a percentage basis, the per cent. of advance varying with different sizes, but 7 per cent. is not far from the average. This action follows the general tendency of planer builders to add to their prices the extra cost resulting from higher wages and increased cost of materials. The Whitcomb-Blaisdell Company has made no change in the price of lathes or other tools of its lines.

The Washburn shops of the Worcester Polytechnic Institute, Worcester, Mass., has recently received an unusual

number of orders for machine tools from Italy. During the past weeek one order for six sensitive drills was booked from Milan.

Machine tool men base hopes of large business on the proposed increase in capital stock of the General Electric Company from $48,325,500 to $60,000,000, especially in view of the fact that the definite statement is made that none of the new capital will be used for the acquiring of additional subsidiary interests but will be devoted to working capital. It is expected that large extensions will be built within the next year, some of the enlargment to be at Lynn, where additional land has been recently purchased. The company is rushed with orders, as is evidenced everywhere among machine men, who complain of slow delivery from the General Electric in common with all the large electric companies. If, as supposed, the General Electric plans to put itself in a position to care for its constantly enlarging business large shop buildings must soon be erected and machinery requirements will be correspondingly great. The current business of the company shows a gain of 40 per cent. over last year.

Farly Osgood, general manager of the New Milford Power Company, New Milford, Conn., has purchased the Wannopee pottery buildings in that town, representing men who propose to establish a company to manufacture a line of electric supplies. Mr. Osgood states that he is not ready to announce details of the company's plans.

The project of establishing large manufacturing buildings at Worcester, Mass., for rental for general industrial purposes, developing the Merrifield manufacturing property for the purpose, is progressing, with a prospect that one of the great buildings will be erected in the near future. Deeds have been passed conveying the Merrifield property to the Merrifield Buildings Trust, and plans are being considered for the first of the new buildings, to be located on Union street, backing up to the Boston & Maine tracks of both the Fitchburg and Worcester, Nashua & Rochester divisions. Details of dimensions are not determined, but it will be a six-story fire proof structure of most substantial construction and equipped with all conveniences in the way of elevators and other appliances for handling materials. There will be a power plant to develop electric power which will be sold to the tenants. The Merrifield buildings, which have some 40 tenants, most of them in metal lines, are now operated by a 1000 horse-power reciprocating engine. This may be retained as it is, which would probably mean a belt driven generator, or what is believed more likely a new engine will be installed, possibly a steam turbine, but nothing has been determined. The plan is to replace the other old buildings included in the transfer as rapidly as the demand will warrant. There is a dearth of manufacturing space in Worcester. Modern manufacturing buildings for rental are at a premium in most of the New England cities. There are usually old factory and shop buildings, but manufacturing under the attendant conditions is expensive and unattractive to good workmen. New England is adding constantly and rapidly to its small industries, which are generally started by men who have been employed in the manufacture of the same general line of product which they propose to manufacture themselves. The ability to get space with modern conveniences is a great advantage to them in beginning business for themselves.

Cincinnati Machinery Market.

CINCINNATI, OHIO, November 14, 1905.

Builders of machine tools in this city report a very satisfactory state of affairs. Trade shows renewed activity along all lines and considerable new business is developing. By way of comparison, there has apparently been no marked difference between the summer season, when trade is usually at low ebb, and the more active months of the fall and winter. Inquiry from all sections and diversity of businesses has sprung up and in many cases from quite unexpected sources. Take, for instance, the automobile industry, which during the past three or four years has grown to very large proportions, not only at home, but from our foreign neighbors as well. It is said that the shipments of machine tools to France alone during this period for this single industry has been enormous. The almost unprecedented prosperity of our own country, with its immense crops that are now awaiting transportation, has necessitated a large increase in rolling stock and motive power of the railroads, thus compelling them to largely increase their facilities for building and maintaining this extra equipment. Machine tool builders report considerable difficulty in securing skilled and competent machinists with which to man their shops. Placards may be seen on a number of them announcing this fact and advertising for one or more machinists, as the case may be. Probably the greatest obstacle with which they have to contend and the one that causes more thought than any other is the question of being able to make deliveries of tools in accordance with contracts. Failure in this direction has been the cause of loss of a number of acceptable orders that would otherwise have been placed had the situation been different.

Cincinnati is to have a manual training school in connection with the public school system, which it is anticipated will have the effect of placing a better class of apprentices in the shops who have been thoroughly drilled in both mind and limb. The result of this teaching it is thought will bear fruit in developing more efficient mechanics and raise the level of this class of labor. These schools will of necessity require a full complement of tools of various kinds, which will result in a benefit to the trade generally.

To give some idea as to the condition of the structural iron and steel work that is now pending in the city we have but to mention the fact that when the Bullock Electric Company contemplated adding about 65,000 square feet to shop No. 3 it was unable to find any structural concern that would agree to complete the contract under six months' time. This was considered impracticable and the contract was given to a concrete concern, which agreed to complete it within ten weeks. This addition will consist of two 45-foot spans, 110 x 260 feet.

During the week Messrs. Vernon and Hutchins, representing Alfred Herbert of Coventry, England, were in the city with a view of purchasing quite a large number of tools.

Cincinnati is to at last have a steel castings plant. A local company has been organized by the Industrial Bureau, capitalized at $100,000, and it is the intention to begin at once the erection of a modern plant with a capacity of in the neighborhood of 500 tons per month. The company will make a specialty of small work for the machine tool and allied industries, though some heavier work will be done also. William Lodge, president of the Lodge & Shipley Machine Tool Company, and also president of the Industrial Bureau, has taken the lead in the organization of the company and will undoubtedly be its president. C. G. Robinson, well known to buyers of steel castings throughout the country, will be the general manager and has resigned his connection with the American Steel Foundries to go with the new company. The company will be incorporated this week under the laws of the State of Ohio, and it is the intention of having the plant in operation before spring. The location will also be selected this week, Secretary Finch of the bureau stating that it has one or two under consideration from which a selection will undoubtedly be made. The plant will probably be established convenient to the Spring Grove avenue manufacturing section, as there are a number of local factories located here which will no doubt consume a large proportion of the output of the plant.

The new shops of the Cincinnati Southern Railroad at Somerset, Ky., are progressing rapidly and several of the buildings are now under roof. The main building is of brick and steel construction, with a tile roof, and is 334 feet long and 170 feet wide. This building will comprise the erecting shop, blacksmith shop and machine shop. The building occupied as a storehouse is 101 feet long and 61 feet wide, with a power building 61 x 96 feet. A transfer table is also being built which will be 50 x 460 feet. A portion of the equipment now in use at the Cincinnati and Chattanooga shops will be transferred to the new shops when completed. In addition to this a large number of standard tools will be required. A partial list of these is as follows:

Three 250 horse-power tubular boilers, one 80-ton electric traveling crane, one 10-ton hand traveling crane, one air compressor, 1000 cubic feet free air per minute; also one air reservoir to be used in connection with same; two fire pumps, 500 gallons each; two boiler feed pumps, 10 x 6 x 10; one 1000 horse-power feed water heater, one furnace with motor for blacksmith shop, one hot air heater system, consisting of fans, pipes, &c., complete; two 4-inch four-stage special pumps, also complete electric equipment for shops, with the necessary engines for operating same.

The United States Electric Tool Company was incorporated at Columbus last week with $25,000 capital. This company was formerly a Kentucky concern and has recently removed to this city. The incorporators are William A. McAllam, D. J. Hauss, J. A. Smith, C. F. Kleinschmidt and G. H. Felter. They will manufacture a full line of electric tools.

The Cincinnati Punch & Shear Company reports plenty of work on hand for some time to come. Nothing further has been done in the matter of increasing the capital of the company, although it is expected that this will assume definite shape before very long.

Oesterlein Machine Tool Company advises that there is a great scarcity of good machinists, which causes delays in making deliveries. Trade is said to be very good and new orders are coming forward in a satisfactory manner.

Cincinnati Machine Tool Company says it has no complaint to make whatever, as it is booked ahead for some months. New orders are being received in excess of the output, and consequently the company feels very content.

Government Purchases.

WASHINGTON, D. C., November 14, 1905.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until December 19 for the following machinery for the Mare Island Navy Yard: Schedule 236, angle shear, key seater and pipe cutting machine.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until December 12 for a quantity of supplies for the Mare Island and Puget Sound navy yards.

The Isthmian Canal Commission will receive bids until November 24 for lathes, planers, saw and timber dressing machines, drills, engines and other shop machinery.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until November 28 for a quantity of supplies for the Portsmouth, Boston, Newport, New York, League Island, Washington and Norfolk navy yards, including schedule 227, motor, electrically driven grinders and drills, &c.

The following bids were opened November 7 for supplies for the navy yards:

Bidder 7, Manhattan Supply Company, New York; 43, Fairbanks Company, New York; 49, General Electric Company, Schenectady, N. Y.; 77, Montgomery & Co., New York.

Schedule No. 191.

Class 151. One electric motor—Bidder 49, $1715.

Class 65. One charcoal furnace, five pumps, two furnaces, two copper pumps and two plumbers' force pumps—Bidder 7, $54.30; 43, $55.05; 77, $53.70.

Under bids opened October 21 for supplies for the various navy yards Tatum & Bowen, San Francisco, Cal., were awarded class 12, one 2-ton overhead electric traveling crane, $1175.

Handlan-Buck Mfg. Company, St. Louis, Mo., class 44, three hydraulic jacks, $239.

Under bids opened October 17 for supplies for the navy yards, class 41, two motors, has been awarded to the General Electric Company, Schenectady, N. Y., at its bid of $655, and class 42, one motor, has been awarded to Henshaw, Bulkley & Co., San Francisco, Cal., at $530.

A choice case of the newspaper bull in the technical china shop is the following quoted from an Indiana paper: "The power house will be a place of miracles to the lay mind, which may then watch electricity sucked from the air at 370 volts and multiplied to 33,000 volts by processes which electricians know as phenomena, and not as science. The reason why is apparently beyond mortal ken, but the results satisfy the commercial purposes, and the tendency of the great mass is 'to let it go at that.' The transformer that by the power that is called 'induction' for lack of a better name, will step up the number of volts, will be enclosed in oil, and the apartment walled in will have doors so that if it gets out of repair it can be easily and safely handled. It will be dangerous to approach it within six feet, and it will be controlled at a safe distance by those in charge."

The contract recently awarded to Orman & Crook of Pueblo, Col., at $879,000 for the construction of the Belle Fourche Dam in South Dakota and connected distribution canals calls for an earthen dam involving 2,500,000 cubic yards of earthwork, 3000 cubic yards of rock excavation, 24,000 cubic yards of concrete and 22½ net tons of steel and cast iron. The earth embankment will be one of the largest in the United States, being 100 feet high in the highest place, 1 mile long and 20 feet wide on top, with 1½ to 1 water slope, which will be paved with stone to a depth of 12 inches. When the reservoir is full the water surface will have an area of nearly 9000 acres and the water will be 60 feet deep. The canals extending on both sides of the Belle Fourche River will irrigate 125 square miles of territory.

Out of twelve Philadelphia foundries from which the core makers and molders went out on strike October 23 seven are now in operation as open shops, about 100 men being at work. Eleven of the twelve shops are affiliated with the National Founders' Association. In the case of one of these the strike will probably result in the permanent closing of the foundry, the company having had under consideration for some time the proposal to have its castings made on contract.

Philippine Imports of Iron and Steel.

WASHINGTON, D. C., November 14, 1905.—The Bureau of Insular Affairs of the War Department has prepared an interesting review of the commerce of the Philippine Islands for the fiscal year ended June 30, 1905, an important feature of which relates to the import trade in iron and steel and manufactures thereof, which has increased rapidly during the past three years and in which the share of the United States has risen since 1903 from 25 to nearly 50 per cent. The total imports of iron and steel and manufactures thereof during the last three fiscal years and the share supplied by the United States are shown in the following table:

	1903.	1904.	1905.
Total imports	$2,023,784	$2,541,491	$2,919,604
From United States	513,261	885,617	1,326,495

The increase in the share of the United States is due chiefly to larger purchases in this country of electrical machinery and structural materials, but the showing is satisfactory throughout a wide range of schedules. The growth of the imports of electrical machinery in the past three years has been astonishing. In 1903 the total imports were valued at only $7378, of which the United States supplied $4550. In 1904 they rose to $19,532, of which the United States furnished $16,259, but in 1905 they increased nearly tenfold, aggregating $184,334, of which the United States supplied $177,314. No other item shows such a proportionate increase, although the total imports of structural iron and steel rose from $49,580 in 1904 to $163,527 in 1905, the share of the United States increasing from $9786 to $82,871. The following figures show the total imports and the share of the United States of the principal articles of the metal schedule during the fiscal year 1905:

	Total imports.	From United States.
Pig iron	$16,676	None.
Bar iron	81,903	$4.823
Bars and rods of steel	28,180	3,703
Hoops, bands and scroll	341	215
Steel rails	227,115	22,407
Iron sheets and plates	246,744	1,967
Steel sheets and plates	14,372	3,095
Structural iron and steel	163,527	82,871
Wire and wire cables	40,893	25.877
Locks, hinges and builders' hardware	25,030	6,583
Saws	3,285	1,823
Tools	105,717	57,367
Car wheels	5.800	None.
Castings	66,569	17,439
Table cutlery	4,503	114
Other cutlery	46,914	6,207
Firearms	9,952	4,309
Cash registers	2,510	2,510
Electrical machinery	184,334	177,314
Metal working machinery	641	641
Printing presses	11,757	10.103
Pumps and pumping machinery	39,258	34,068
Sewing machines	5,553	22,870
Locomotives	22,143	22,143
Stationary engines	43,290	36,766
Boilers	107,686	42,151
Typewriters	36,696	33.087
Sugar and brandy machinery	10,455	50
Other machines and apparatus	266.403	181,095
Detached parts of machinery	119,469	74,550
Cut nails and spikes	1,353	152
Wire nails	33,739	20,642
Other nails and tacks	21,175	4,872
Pipes and fittings	106,656	91.707
Safes	10,633	6,201
Scales and balances	12,721	9,970
Stoves, ranges, &c	10,412	9,090
All other manufactures of iron and steel	439.336	187,557

Early in the coming session a bill will be introduced in Congress for the execution of Secretary Taft's plan for the reduction of the duties on Philippine products imported into the United States to 25 per cent. of the Dingley rates. A similar measure has been pending during the past three years, but never before has the Administration exerted itself so energetically to secure action. Forty members of the Senate and House visited the Philippines during the past summer in company with Secretary Taft, and it is claimed that many converts to the Administration's project were made as the result of the trip.

W. L. C.

HARDWARE

AS was anticipated the policy to be pursued toward the catalogue houses was one of the prominent subjects before the recent conventions in Washington. It was the one important topic which occupied the open session at which the manufacturers by invitation met with the jobbers, and was there presented in addresses from merchants representing wholesale and retail views of the problem. Had there been time the manufacturers also would have been heard from in one or more addresses, giving a view of the subject from their standpoint. A striking pictorial method by means of the magic lantern was made use of, reproducing pages from catalogues of the retail mail order houses and in condensed tabulated form showing the relation between the catalogue prices and those at which the retail trade regularly purchase the goods. In this way the point was forcibly made that there is not sufficient margin between the retailers' cost and the mail order selling prices to give the retail merchants a living profit. While the figures thus brought before the meeting were striking and impressive the argument would have been more complete if the prices to the jobbers had also been shown, provided it would thus have appeared that the retailers' purchasing prices represented only a reasonable advance on the jobbers'. The presentation was, however, exceedingly forcible and the addresses made by the retail merchants were also clear and strong and made plain the seriousness of the catalogue house competition.

While this discussion attracted attention and called out much comment, it was after all only discussion, and did not result, as it was not intended to result, in any formal action. The public consideration of the subject was picturesque and impressive and served its purpose in informing merchants and manufacturers and in furnishing a topic for conversation in the lobbies of the hotels, as well as in the executive sessions. The evils of the competition in question were thus emphasized, causing the trade seriously to consider in what way this competition is to be met. The matter, however, came up in a more practical manner at one of the executive sessions of the Jobbers' Association, when the action referred to on another page was taken. This action when carried out promises to bring the subject directly home to every Hardware manufacturer and jobber, who will be asked to state their position in regard to the catalogue houses and their business. As narrated elsewhere, it will be seen that the plans of the committee, which have been formally approved by the jobbers, contemplate four things:

1. That the Catalogue House Committee shall communicate with the Hardware manufacturers and jobbers of the country to elicit from them a statement as to the course which they will pursue with reference to the catalogue houses.

2. That a list of such manufacturers and jobbers shall be published in book form with an indication of the substance of the replies which they make to such inquiries.

3. That such book, with a key explaining the markings which indicate the character of the replies, shall be distributed to the retail and wholesale merchants of the country.

4. That such merchants are to be recommended in their dealings with the manufacturers and jobbers to bear in mind their attitude on this question, as indicated by the markings in the book.

It is not at all likely when this recommendation was made by the Catalogue House Committee and approved by the jobbers that they realized the colossal task they had undertaken. The plan, it is to be observed, does not relate simply to trademark goods of the leading manufacturers or jobbers, but to all manufacturers of goods sold by Hardware merchants, and to all Hardware jobbers, including hundreds who are not members of the National Hardware Association, some of them being great houses and others belonging to the large and growing class of local jobbers. The greatest difficulty will naturally be experienced with the list of manufacturers, of whom there are many thousands, including of course the prominent houses with which every one in the trade is familiar, and a multitude of small concerns making one or more of the extraordinary variety of goods which belong to lines handled by Hardware merchants. The compilation of such a list is a Herculean task if it is to be done at all completely.

When such list is compiled it will, however, serve a very useful purpose. Apart from the use to which it is intended the trade shall put it, it will be exceedingly convenient as a book of reference, putting the merchants, large and small, in possession of names and addresses of jobbers and manufacturers in every line of Hardware and related goods. It will thus indeed be a directory of the trade enabling merchants to communicate if they so desire with the manufacturers and get into direct relations with them. It will also be useful to merchants but especially to manufacturers as giving a complete list of the jobbing trade and especially the smaller jobbers with whom for one reason or another they may desire to communicate. It will therefore be desirable that both manufacturers and jobbers be represented in such list, especially if their declared attitude toward the catalogue house business is such as to give them a favorable marking.

At this point, however, we encounter an unpleasant feature of the plan, as there would be presented to the jobbers and manufacturers a temptation to make replies which would secure the desired favorable marking, while at the same time there might be some mental reservation which would permit them to have dealings with catalogue houses on the quiet. It is well known that the goods of some manufacturers who have been announced as refusing to have dealings with the catalogue houses somehow find their way into their stocks and continue to be shown in their catalogues. Indeed, within a very short time a member of the National Hardware Association, which passed the resolution we are considering, tendered his services unsolicited to a manufacturer, offering to place the manufacturer's wares with the catalogue houses. Such disingenuousness, to call it by no harsher term, is greatly to be deprecated, and we fear that the effect of the plan which the jobbers have approved will be to foster and increase it, much to the detriment of trade morality. If the use of a list so compiled were recommended by a trade union it would look like a concerted boycott. We cannot believe that either the Catalogue House Committee or the National Hardware Association would contemplate anything of the kind. Such a policy would not, we are confident, meet with the approbation of the Hardware men of the country, who are a high-minded body of merchants.

Condition of Trade.

The general situation shows but little change, the market continuing steady and in some directions strong, with a large volume of business. From both jobbers and the larger retailers manufacturers are receiving many orders, and their capacity is taxed to the utmost and in many cases overtaxed in the effort to supply goods as fast as called for by the trade. With the coming of winter weather season goods are moving freely from the stores of the retail merchants, and even as between the merchants and the manufacturers there is a good deal doing in these lines. Holiday goods are active and many merchants who did not purchase earlier are getting in or ordering their holiday goods. With the constant broadening of the Hardware field, as related goods are brought into the Hardware store and made a part of the regular stock, there is a steady tendency towards the handling of the finer wares and more attractive articles which find their best season about the holidays, but for which there is more or less demand all the year. The increased attention given by merchants to goods of this character is one of the indications of enterprise which are to be found in nearly every direction in connection with Hardware interests. This does not of course interfere with the prosecution of the business with energy and aggressiveness on the old regular lines. There continues to be much enterprise on the part of manufacturers, as plants are being improved and enlarged, new machinery installed and in one way or another the productive capacity increased. Fortunately the tremendous consumption of goods is accompanied in steady and growing volume by the demand for goods for foreign shipment. The conditions thus as related to business both at home and abroad are eminently satisfactory.

Chicago.

The record breaking corn crop as indicated by the Government report just issued is assurance of continued prosperity in the Hardware trade in the West and Northwest. The tremendous yield as shown by these figures is surprising even to those best acquainted with the general crop situation of the country. However, the Hardware trade during the past two or three months has acted as an excellent barometer on general conditions throughout this territory and the record-breaking demand for all kinds of tools required in harvesting the corn crop was an early indication of its unusual proportions. Practically all of the jobbers are now making a specialty of various classes of goods required for the holiday trade and these now cover a wide range, not only including fine Hardware, such as Cutlery, &c., but taking in all kinds of solid Silver and Plated Ware, as well as Lamps and Cut Glass. The general tendency of prices on heavy Hardware is upward, an advance in Wrought Washers having just been announced. Bar Iron continues to advance and it is predicted that it will be selling at 2 cents before the end of the year. All classes of goods manufactured from this material are naturally affected and manufacturers' prices are revised from time to time. Of course there are exceptional cases in the Hardware line where mitigating circumstances have resulted in recent declines rather than advances. The reduction in the price of Wire Cloth announced by the manufacturers was a notable instance of this kind and that consumers are alive to the situation is indicated by the heavy orders they have recently placed with the manufacturers and jobbers for their future requirements, believing that an advance will be made in the not distant future. Notwithstanding the advance in Poultry Netting the buying has been on a very large scale. Jobbers report continued heavy movement of Galvanized Sheets from stock and there is no abatement in the demand for Wire Nails and Wire products generally.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—As most of the "bosses" are away attending the Hardware conventions at Washington, reports this week must be rather limited. We are in the midst of our beautiful autumn weather and volume of trade is keeping up splendidly, and we look forward to no relaxation in it until the Christmas holidays. The steady increase in the price of cotton has exerted a very favorable influence on the trade in the cotton growing States and has helped general sales very much.

Collections are coming in in a very satisfactory manner, and the business situation is looking very well and very permanent.

From now on will begin the taking of orders for future shipment on spring goods. It is wonderful how fierce competition is on these lines that are sold only in the spring. The excessively close prices at which competition forces these lines to be sold actually robs the spring months in the Hardware business of all pleasure, because one really feels he is working harder than at any other season for very much smaller returns. But like everything else the Hardware business must be taken on the average, and other months in the year sometimes compensate for the spring.

Cleveland.

THE W. BINGHAM COMPANY.—A very good trade is now coming to this market on seasonable goods. We also note that mail orders are well assorted and run into many different lines of goods, showing conclusively that the retail merchants are having an unusually good trade. Salesmen are sending us well assorted orders for all kinds of Hardware; many holiday goods are going forward, especially in the Cutlery, Fancy and Sporting Goods lines. A large tonnage of Staple Goods, Nails and Wire, Merchant Pipe, Sheet Steel, Black and Galvanized, &c., is going forward by water in order to reach destination before the close of lake navigation.

Prices, for the most part, are steady and even; in fact there have been some advances and we are looking for further advances on many goods before the end of the year. We believe merchants would do well to place their orders for Shovels, Spades and Steel Goods, such as Steel and Malleable Garden Rakes, Manure Forks and Field Hoes, that will be wanted early in the spring. If these orders are not placed in advance customers cannot be served promptly.

We have had the first fall of snow, and it has induced a large number of orders for Snow Shovels and Hand Sleds. Those who did not buy their stocks early will not be served so promptly as they would like. However, all jobbers have a fair supply on hand of Snow Shovels, but the factories are short on Hand Sleds. These being short season goods, if parties do not order early they cannot be served promptly, or on the "drop of the hat."

Many orders are being booked for Black and Green Wire Cloth and Poultry Netting for next season's shipment. Duplicate orders are coming in for Lanterns, Stove Boards, Food Choppers, showing that the trade that bought early have had a good trade on them and are now replenishing their stock. Trade in all lines is quite satisfactory.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—The volume of business has shown a considerable increase during the last two weeks. Colder weather is bringing out quite a large number of orders, all quarantines throughout the Southern States having been raised, and all merchants are having a heavy drain on them from their customers and are consequently buying liberally.

The movement of winter and holiday goods is now very heavy. Quite a number of spring orders are also beginning to be placed, such as Steel Goods, Plows, Plow Plates, Harness, Saddles, Cotton Rope, Screen Doors, Wire Cloth, &c.

Collections are better than they have been for several

months and the prospects are exceedingly bright for good trade for some time to come.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The market continues active and strong. There seems to be no disinclination on the part of buyers to pay legitimate advances, and several of these have come in the cruder forms of material, such as Bars, Plates, Angles, &c. These latter are particularly hard to get. There is no such thing as securing a definite promise or feeling that you can rely on it if you do get such. Recent advances may be safely scored as $2 or $3 per ton for reasonable deliveries. The demand for Angles and Structural Shapes generally is unprecedented. We shall have to start more mills capable of turning them out or else look abroad for immediate supply, as there is no substitute, and the buildings and bridges, &c., are imperative.

Politics the country over has done a good deal to displace the interest in Hardware for the time being. Widespread interest is manifested in the numerous revolts against "ring," or "boss" rule in many of the States, counties and cities. Breathitt County, of unhappy fame in our own State, succeeded in effecting a complete change, imitating the example of Philadelphia. Other localities were not so fortunate; some of the most daring election frauds ever perpetrated were carried out in our city of Louisville. A heavy penalty was paid for the privilege of casting one's vote and for trying to have it counted as cast. Two of the officers of this company were assaulted and roughly treated by both police and ward heelers. The subject overshadows everything for the time being, the main object now being to get the reports of the outrages in such shape that fair and impartial trials may be had of the lawless offenders.

The fine fall weather is encouraging all sorts of outdoor work. Now that yellow fever has disappeared we hear no complaints from that quarter. Money is extremely well employed. Higher rates prevail than have been obtainable for a long time and the banking institutions are having a prosperous six months' period. The fact is that crops are so full and bring such good prices that it takes more money than usual to move them, but if there is one thing which we can stand with equanimity it is high priced money as indicating great commercial activity.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Exports in October from this port were the largest in its history, exceeding October of 1904 by nearly 20 per cent. Farm products, while not bringing the highest prices, are selling on a basis that returns fair remuneration to producers. Weather to date has been all that could be asked for. Early and heavy rains put ground in fine condition and dry weather since has enabled farmers to seed an unusually heavy acreage. Considering above facts it is not to be wondered at that trade this fall comes in so satisfactorily.

Railroad construction in hand and arranged for is on a scale never before equaled in the Pacific Northwest. Building operations in city increase instead of showing any decrease, assuring employment of all kinds of labor for months to come. The price of real estate still soars and the end is not yet in sight, so that capitalists, mechanics and laboring men are in a happy and contented frame of mind. If trouble is in store for us it is from without and not within. Conditions in Oregon and Washington are healthy and sound.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—The general business situation in the territory west of the Missouri River remains fully as favorable as it was at the time of our last report. All kinds of seasonable merchandise are going into consumption rapidly, and both jobbers and retailers are enjoying a period of exceptionally fine business. There seems to be sufficient money available to move all the crops to the markets on the Atlantic seaboard.

The activity in all lines of trade and the immense crops that must be moved from one section of the country to the other create no uneasiness as to the ability of the banks to handle the business, but there is a well grounded apprehension that the railroads, with all their increased facilities for traffic, will still be more or less hampered for the next few months in hauling the surplus of the crops to their destinations.

The outlook for future business is very promising, and a heavy movement of goods will probably extend through the winter months.

NOTES ON PRICES.

Wire Nails.—Demand continues active, both in new orders and in specifications on contract orders. Mills are operating to their full capacity and are shipping promptly in anticipation of car shortage and delays incident to winter weather. The market is firm. Quotations are as follows, f.o.b Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers	$1.80
Carload lots to retail merchants	1.85

New York.—The first two weeks in this month showed a volume of business in the distribution of Wire Nails in small lots from store as large as for the same period in October. Since then there has been a small reduction in the size of orders, which is not unexpected at this time of the year. The competition of jobbers results in irregularity of prices. Regular quotations for small lots from store are, however, $2 to $2.05, base.

Chicago.—Several of the leading independent interests are in favor of an advance of $1 a ton, but the general conservative feeling prevailing throughout the iron and steel markets to hold prices at a normal level precludes the possibility of an early advance, as the leading interest is satisfied with present prices, despite the tremendous tonnage on its books and the large volume of current business that is constantly coming forward. Customers throughout the South and West are urging shipments, and are endeavoring to lay in heavy stocks to prevent a shortage when the car shortage becomes more acute later in the year. Quotations continue well maintained and no changing is reported in this market. We quote as follows: $1.95 in car lots to jobbers and $2 in car lots to retailers, with an advance of 5 cents for less than car lots from mill.

Pittsburgh.—We note a continued active demand for Wire Nails, the trade placing orders liberally, while specifications on contracts are coming forward very freely. The Wire Nail mills are being operated to full capacity, turning out a very heavy product, which they are shipping as fast as made, desiring to take advantage of the favorable weather and allow the large trade to have as heavy stocks of Nails as possible before the weather breaks. The tone of the market is firm and we are advised that official prices are being held. We quote Wire Nails at $1.80 in carloads to the largest jobbing trade and $1.85 in carloads to retail merchants, f.o.b Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days.

Cut Nails.—A meeting of the Cut Nail Association will probably be held some time near the last of the month. No official change has been made in prices, but some indications point to a slightly stronger market. The consumption of Cut Nails has grown light during the past few years in comparison with that of Wire Nails without a corresponding reduction in productive capacity, which is more than equal to demand. Hence the difficulty in advancing and maintaining prices. Quotations are as follows: $1.65, base, for carload lots, f.o.b. Pittsburgh. Iron Cut Nails for delivery at Pittsburgh, Buffalo and all points west of these cities are held at $1.75, base, in carload lots.

New York.—The requirements of the trade are indicated by the size of the orders received by jobbers for

small lots from store. Prices are irregular owing to competition. Regular quotations for small lots from store are, however, on the basis of $1.90.

Chicago.—One of the largest jobbing interests in the West is now holding Cut Nails on the basis of $1.70, Pittsburgh, or $1.85, Chicago. The mill represented by this concern will only accept business on this basis for immediate shipment, which indicates an early advance in prices. Iron Cut Nails are held at an advance of $1 to $2 a ton above Steel.

Pittsburgh.—We note a fair demand and the tone of the market is firm, but prices are not as yet any higher. The capacity to make Cut Nails seems to be more than adequate to meet the demand and for this reason there is some little difficulty experienced by the mills in advancing prices and maintaining them. We quote Cut Nails $1.65, base, in carload lots, f.o.b. Pittsburgh, an advance of 10 cents per keg being charged for Iron Cut Nails.

Barb Wire.—New business is comparatively light, but specifications on contract orders are being received freely by the mills. The market is firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$1.95	$2.25
Retailers, carload lots	2.00	2.30
Retailers, less than carload lots	2.10	2.40

Chicago.—Current business is comparatively light, as the contracts for the fall trade were placed some time ago. Specifications, however, are heavy, as both jobbers and consumers are endeavoring to secure deliveries before the cold weather sets in. The buying for the spring trade has not yet commenced and is not anticipated until after the first of the year. Quotations are being firmly maintained as follows: To jobbers, Chicago, car lots, Painted, $2.10; Galvanized, $2.40; to retailers, car lots, $2.15; Galvanized, $2.45; retailers, less than car lots, Painted, $2.25; Galvanized, $2.55; Staples, Bright, in car lots to jobbers, $2.05; Galvanized, $2.35; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—A fair amount of current business is being placed, while specifications on contracts are coming in very liberally, giving the mills full work. Shipments are heavy, manufacturers taking advantage of the favorable weather, but are handicapped to some extent by the scarcity of Steel and a shortage in cars. The market is firm and official prices are being firmly held. We quote Painted Barb Wire at $1.95 and Galvanized at $2.25 in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days.

Smooth Fence Wire.—Demand is heavy, but confined largely to specifications on contract orders. The tone of the market is firm at official quotations. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—Mills continue to be swamped with specifications, especially from manufacturers of Fencing, whose order books show the largest tonnages in the history of the trade at this season of the year. Current business is fair and quotations are well maintained as follows: $1.80 to jobbers, f.o.b. Chicago, in car lots, and to retailers, car lots, $1.85.

Pittsburgh.—Specifications on contracts are liberal, while new demand is fairly large and the mills have their product well sold up for the balance of this year or longer. The market is firm on the basis of official prices. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.65
Retailers, carloads	1.70

The above prices are for base numbers, 6 to 9.

Rope.—Business is good with manufacturers, demand being excellent. Quotations are as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality Sisal, 8 cents per pound. Manufacturers of Cotton Cordage are busy, some being behind on their orders.

Paints and Colors.—*Lead.*—The price on White Lead, dry or in oil, Red Lead and Litharge in kegs has been advanced as follows: In lots of 500 pounds and over, 7 cents per pound; in lots of less than 500 pounds, 7½ cents. The differentials for larger and smaller sized packages remain unchanged. Current demand in this market has fallen off somewhat, but specifications on contract orders are coming in freely.

Window Glass.—According to reports independent manufacturers' prices are becoming lower, having reached 90 and 10 and 5 to 90 and 15 per cent. discount on all above the third bracket and 90 and 25 per cent. on smaller sizes from the manufacturers' list of January 1, 1901. This list is in general use, as the list of August 8, 1905, was discarded for want of support or recognition. It is understood that the American Window Glass Company has made its discounts for Glass above the third bracket 90 and 10 and 5 per cent. Local demand is light, but is expected to improve with cold weather. The market has a tendency to weakness and prices are about 5 per cent. lower than jobbers have been quoting. New York quotations are as follows: First two brackets, single and double strength B, 90 and 10 and 5 per cent. discount; all other sizes, single and double strength, 90 and 5 per cent. discount. At a meeting of Window Glass jobbers, held in Chicago October 10, the official list, which has been in effect since October 1, 1903, was reaffirmed. The meeting was attended by representatives of nearly every jobbing firm west of Pittsburgh. While prices are not rigidly held, prevailing discounts in the West are about 90 and 20 off on the first two brackets, single, and 90 and 10 on other sizes. Indications point toward a fairly steady market through the balance of the fall. Practically all the factories are in operation at the present time, and the production of Window Glass in the Kansas gas belt has reached a point where there are over 200-pot capacity operating in that section. The production in Indiana is very much curtailed, many factories having gone out of business during the past two years on account of the scarcity of gas in that State. With the increasing production made with the machine by the American Window Glass Company, however, the production of the country has very materially increased.

Linseed Oil.—Prices were officially reduced 2 cents per gallon the 13th inst., at which figures Oil had been selling for two or three days. Competition of contract Oil which had been bought at 36 cents, or lower, and the falling off of demand incident to the lateness of the season both contributed to this result. The market now appears to be regulated by natural causes and if these continue to rule the probability is that prices will be lower before the first of the year. New York quotations for prompt delivery are as follows: City Raw, 40 to 41 cents per gallon, according to quantity; State and Western Raw, 38 to 39 cents per gallon. Boiled Oil is held at 1 cent advance over Raw.

Spirits Turpentine.—Business in Southern markets is comparatively light, with a weaker market. The local market has felt this influence in a smaller demand, and prices have declined and are lower in proportion than those at Savannah. New York quotations are as follows, according to quantity: Oil barrels, 68½ to 69 cents; machine made barrels, 69 to 69½ cents.

THE firm of E. F. Smith & Co., manufacturers of Wire Goods, &c., at 29 Crown street, New Haven, Conn., composed of Edward F. and John P. Smith, was dissolved November 1, 1905, and the business will be continued at the old stand by Edward F. Smith alone under the old name of E. F. Smith & Co.

DAVID MAYDOLE HAMMER COMPANY'S NEW CATALOGUE.

THE DAVID MAYDOLE HAMMER COMPANY, Norwich, N. Y., and 155 Chambers street, New York, has recently issued a new descriptive catalogue of its entire product, illustrated in colors. Since the last edition of 1901 the works have been enlarged, facilities greatly increased and many new varieties and sizes of Hammers listed. The regular line now aggregates 343 styles, sizes and finishes, press forged from solid crucible cast steel and fully warranted. Every Hammer, regardless of style, size, kind or finish, has its own individual number.

BELCHER BROTHERS COMPANY.

THE BELCHER BROTHERS COMPANY has opened a New York office at 31 Spruce street. The business of this company in the manufacture of Rules was established in England in 1780 and in America in 1821. At the factory in Irvington, N. J., are produced many kinds of Rules, other than Folding Rules, which were discontinued some years ago. The output now includes Desk and Saddlers' Rules, Tailors' Squares, Wantage Rods, Board Rules, &c. A large business is done in the manufacture of Desk Rules in great variety for advertising and souvenir purposes for business houses which wish gratuitously to distribute a useful article bearing their name and address with something of the character of their business on it. The officials of the company as now constituted are: Henry F. Belcher, president; Edwin B. Stimpson, vice-president; Herbert Johanknecht, secretary, and Henry V. Rau, treasurer.

S. A. HARRIS, one of the leading salesmen of the London house of Guiterman, Rosenfeld & Co., and 35 South William street, New York, exporters and commission merchants, is due in this city from England November 18. In addition to renewing old acquaintances in America Mr. Harris will investigate various new lines for the English market. He is particularly interested in Hardware, Woodenware, Kitchen Utensils and House Furnishing lines generally, in all of which the house deal extensively in Great Britain. Quick selling novelties of any kind are also sought. Mr. Harris will have his headquarters at the New York address of the house and while here expects to visit such trade centers as Boston, Buffalo, Cleveland, Chicago, &c. He will be pleased to have appointments with manufacturers in or near these cities. Manufacturers of articles suitable for export trade who are desirous of extending their connections are asked to send catalogues with export prices to Guiterman, Rosenfeld & Co., New York, so Mr. Harris can arrange an appointment.

WIEBUSCH & HILGER, 9-15 Murray street, New York, have taken over the selling portion of the business of the Findlay Axe & Tool Company, Findlay, Ohio, and, with a few reservations, will market the company's entire product in the United States and foreign countries. Charles F. Wiebusch has interested himself financially in the Findlay Axe & Tool Company and will become one of its officers. Among the goods this company manufactures are Axes in a number of standard patterns, together with Hunters' and Axe Pattern Hatchets, Shingling and Broad Hatchets, Boys' Axes, Railroad Adzes, &c. M. T. Christopher, who has represented the Findlay Axe & Tool Company in the East, with an office at 35 Warren street, New York, is now connected with Wiebusch & Hilger and will give this line his particular attention.

THE main store of the Luttrell Hardware Company, Brewton, Ala., was gutted by fire on the 9th inst. The company's warehouse is intact. The loss is estimated at from $15,000 to $20,000. The insurance amounts to about half that sum. The company will rebuild immediately and continue business with very little interruption. All the books and papers and most of the catalogues were saved, stored as they were in a large fire proof vault.

DEATH OF ABRAHAM BUSSING.

ABRAHAM BUSSING, for many years president of the Ausable Horse Nail Company, died at his home, 24 East Sixty-first street, New York, Saturday, November 4. Mr. Bussing injured his foot last June, from which blood poisoning developed, resulting in a long illness, and despite several operations and great care finally caused his death. Mr. Bussing was born in Dey street, New York, in 1828, and was the son of Edmund K. Bussing and Hester Kingsland Bussing. He was educated at New York University and since his majority had been engaged in business in this city. He married Emma Frost, daughter of the late Samuel Frost, in 1859. Mr. Bussing was at one time a director of the National Shoe & Leather Bank, New York, and was one of the founders of the First National Bank of Montclair, N. J., where he resided for about 20 years. He was always active in church and charitable work. Mr. Bussing is survived by a widow and one daughter, Alice, wife of Howard T. Kingsbury.

THE REPUBLIC METAL WARE COMPANY.

THE REPUBLIC METAL WARE COMPANY of Buffalo has been incorporated with a capital stock of $1,500,000 to succeed to the business of the old and well-known firm of Sidney Shepard & Co., who have been engaged in the manufacture of metal goods and agate ware for the past seventy-five years.

Recently the latest partners in the firm, James G. Forsyth of Buffalo and Charles G. Dennison of Chicago, died, and the surviving interests deemed it wise to transform the concern into a stock company.

The extensive plant of the company on Tecumseh street, Buffalo, with a branch factory on Clinton street in the same city, will continue to be operated as heretofore. The incorporators of the new company are Edward M. Mills, Evan Hollister, Irving L. Fisk, Sidney Detmers and Franklin Agge, all of Buffalo. The officers of the company will be elected in a few days, but it is understood the changes will be few, the financial and executive heads remaining practically as at present.

LARGELY DECREASED ESTIMATE FOR EXTENSION OF RURAL FREE DELIVERY.

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, D. C., November 14, 1905.

THE forthcoming annual report of the Postmaster-General will contain an item among the estimates for appropriations that will be distinctly encouraging to the retail merchants of the country doing business in rural communities whose prosperity has been adversely affected by the wholesale extension of free delivery routes during the past five or six years. This item will be a largely decreased estimate for the extension of the rural service during the next fiscal year and will foreshadow a general decline in the rate of the installation of new routes. It is predicted that the estimate will be the smallest laid before Congress for several years and will probably not exceed $2,000,000.

Condition of Service November 1.

The Rural Free Delivery Division of the Post Office Department has prepared a statement of the condition of the service on November 1. This statement constitutes the most encouraging evidence thus far presented that the annual increase in the service has reached its maximum and that hereafter there will be a steady decline in the number of routes established until a normal and rational rate of growth is attained. The total number of routes in operation on July 1 of the current year was 32,055. On November 1 this number had increased to 33,948, a gain during the first four months of the present fiscal year of 1893. If this rate of establishment

should be maintained throughout the year the total increase would be slightly less than 5700 routes. During the fiscal year 1905 7489 routes were established, and in 1904 the total was 9447. These figures go far to prove that high-water mark in the rate of increase in the establishment of rural routes was reached during the fiscal year ending June 30, 1904, as claimed by the late Fourth Assistant Postmaster-General Bristow and there is reason to believe that a steady decline will be noted hereafter.

With a view of showing at a glance the growth of the service since its inauguration in 1897, and more especially to indicate the decline which has now set in, the following statement has been secured from the Post Office Department, showing the number of routes established and the total number in force during each fiscal year since the service was authorized:

Fiscal year.	Established.	In operation.
1897	44	44
1898	108	148
1899	243	391
1900	885	1,276
1901	3,025	4,301
1902	4,165	8,466
1903	6,653	15,119
1904	9,447	24,566
1905	7,489	32,055
1906 (estimated)	5,700	37,755

The report on the rural free delivery service for November 1, above referred to, furnishes some decidedly interesting details with regard to the routes in operation in the various States and the petitions for new routes now pending. Since the service was originally established petitions for routes have been filed to the number of 50,868. Adverse reports have been made upon about one-fourth of these petitions, the exact number being 12,585. Deducting these adverse reports and the number of routes in operation from the total number of petitions filed there remain 4335 petitions pending on November 1. Of these pending petitions, however, 546 have been assigned for establishment prior to December 31, leaving 3789 unacted upon at the present time.

Illinois Is Still the Banner State

in the number of routes in operation, the total being 2608, with 147 petitions pending; Ohio comes next with 2392 routes and 158 petitions pending; Iowa stands third with 2184 routes and 142 petitions, while Indiana is fourth with 2063 routes and 112 petitions. The other States in which more than 1000 routes have been established are given as follows: Pennsylvania, 1877 routes and 122 petitions; Michigan, 1747 routes and 147 petitions; Missouri, 1729 routes and 230 petitions; New York, 1683 routes and 70 petitions; Kansas, 1525 routes and 99 petitions; Tennessee, 1473 routes and 184 petitions; Texas, 1437 routes and 298 petitions; Wisconsin, 1436 routes and 50 petitions; Georgia, 1302 routes and 243 petitions; Minnesota, 1294 routes and 170 petitions, and North Carolina, 1060 routes and 262 petitions. It is noticeable that the

Southern States

are making the most active efforts to secure the establishment of rural service, a fact that should not be lost sight of in the trade, especially as the big catalogue houses are now turning their attention toward the South and are planning to extend their business in that territory. The largest number of petitions now on file, 307, are from Alabama. Texas comes next with 298 and is followed by North Carolina with 262, Mississippi and Georgia 243 each, Missouri with 230 and Kentucky with 195.

While the estimate of the Postmaster-General for the extension of the rural service during the coming fiscal year will be smaller than heretofore, it must, however, be added to the cost of maintaining the routes now in operation, and hence the total estimate for the service will necessarily be larger than ever before. It is therefore evident that whatever plans the Department may have for curtailing expenses with a view to wiping out the big current deficit no economies can be effected in the rural service. It will be a matter of congratulation, however, that the increase for the next fiscal year will be materially less than heretofore. W. L. C.

The Washington Conventions.

THE following pages bear ample testimony to the importance and interest of the two great conventions which met last week in Washington. The attendance at both was large and more representative, it is thought, than at any recent gathering of this kind. The presence of responsible members of firms or corporations was noticeable. Notwithstanding the attractions of the capital the attendance at the business sessions was excellent and careful consideration was given to the various matters which called for deliberation. The entertainment features for the delegates and their guests were above criticism, the reception and banquet being elegant and noteworthy functions.

Legislation in Regard to Freight Matters.

One of the important questions before both associations was as to the position to be taken by them in regard to freight rate legislation and legislation relating to abuses generally in connection with transportation. Recognizing the complexity and difficulty of the subject, the Transportation Committee of the National Hardware Association did not deem it advisable to take any official action on the subject, and in accordance with their recommendation the whole matter was laid upon the table without extended debate. Following is an extract from the report of the committee:

> We do not think it advisable to take any official action in this matter, as we believe it is too big a question for any board or body of men to deal with. A relief in one direction would be an injustice in some other part of the country. The bill now before Congress does not deal effectually with the real evil, nor does it provide for the exercise of safeguards to a dangerous power. In our opinion the bill has a tendency to tremendously increase the power of the Government at Washington.

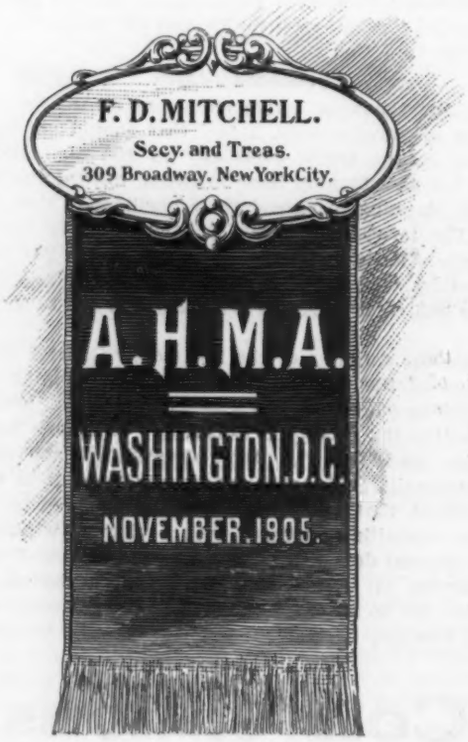
Before the Manufacturers' Association the matter was discussed more fully, and notwithstanding some difference of opinion the following resolution, which had been presented by E. B. Pike, was adopted, with directions that a copy of it be communicated to President Roosevelt:

> *Whereas*, The American Hardware Manufacturers' Association, assembled in ninth annual convention, has under consideration proposed action of various kinds intended to preserve and promote the interests of its members as manufacturers and shippers, and incidentally the public at large, including the appropriate amendment of the Interstate Commerce law, that great statute which was designed to redress all real grievances of shippers and consignees, and yet protect the railway carriers in the exaction of reasonable and just revenue, and which has been shown by the test of long experience to be defective in important respects, and particularly so in failing to afford prompt and efficient remedies to shippers for existing transportation evils; and,
>
> *Whereas*, The amendment of this important remedial law was given extended treatment in the last Executive message to Congress by the President of the United States, and has since been publicly discussed by the President in numerous addresses, wherein that great leader of the people and advocate of the enforcement of civil rights has announced the changes in the law which, after the most painstaking examination, consideration of the opinion of the Attorney General and other legal advisers, and mature reflection, are deemed essential to effect the purposes of the act and justly promote the public interest; and,
>
> *Whereas*, It seems a prudent and wise course to follow the disinterested and patriotic leadership of our great President rather than be diverted by specious arguments from individuals and more or less interested sources into advocating peculiar and untried plans of legislation; now, therefore, be it
>
> *Resolved*, That this association does hereby cordially indorse the plans for railway rate regulation proposed by President Roosevelt, and recommend that such railroad rate regulation be enacted by the Congress at its next session.

Badge of the Conventions.

The badges prepared for members of both associations and visitors were the original device of F. D.

Mitchell, the popular and efficient secretary-treasurer of the Manufacturers' Association. The highly appreciated feature of these badges was that they identified the wearer by name and not by number, so that it was unnecessary to refer to a key. They also gave the wearer's business connection and address. Distinctive ribbons were used on the badges—blue for the manufacturers, red for the jobbers and white for the visitors—so that it was easy to tell at a glance to what classification each individual belonged. Mr. Mitchell received many congratulations on his idea, and it is understood that several other associations are desirous of using it. The printed names are protected by crystallized celluloid, but are



readily interchangeable, as are the ribbons. Badges were conveniently prepared for unexpected guests by writing their names on a typewriter and inserting them in the metal frames.

Action of the Jobbers on the Catalogue House Question.

A report was presented to the National Hardware Association by the members of the Catalogue House Committee who are members of that association. In this report reference was made in a general way to the problem under consideration and to the plans of the committee. It concluded with two recommendations, both of which were approved and adopted by the jobbers. The first was that the lantern slides used by Mr. Norvell in his address on Wednesday be loaned to the retail associations if they desired to make use of them at their spring meetings. This action was taken with a view to making the retail merchants familiar with the facts in the case and enabling them to bring before their members in a striking way the competition with which the trade is confronted.

The second resolution had a much wider bearing and concerns every manufacturer and jobber of Hardware. It is to the effect that in the near future the views of manufacturers and jobbers should be obtained on the catalogue house question and that the same should be tabulated in book form and alphabetically arranged, with a letter before each name indicating the character of the answer; that there should be a key accompanying the list setting forth what each letter signifies, and that after such book has been compiled it should be placed in the hands of the jobbers and retailers of the country in order that they may know when purchasing goods the attitude of those with whom they are doing business.

The Consular Service.

In view of the increasing importance of finding foreign markets and the important part that may be taken by the Consular service in the promotion of export trade, the Manufacturers' Association took especial interest in the efforts being made by the Government for the improvement of this service. As expressing their view of this subject the following resolution was adopted:

Resolved, That the American Hardware Manufacturers' Association, in convention assembled in the National Capital, approves a plan to reorganize the American consular service on a strictly business basis, that it may become more serviceable in the extension of our foreign trade, by the creation of larger markets for our products.

The following resolution, almost identical, was adopted by the jobbers:

Resolved, That the National Hardware Association, in convention assembled in the national capital, approves the measure to reorganize the American consular service on a strictly business basis, that it may be more serviceable in the extension of our foreign trade, by the creation of a larger market for our surplus products.

Numbering Cases in Freight Shipments.

R. A. Kirk introduced to the jobbers the subject of numbering cases of freight in addition to marking them with the shipper's name, said numbers to appear also on shipping tickets, thus greatly aiding consignees in checking freight received and forwarding it to the proper department, as well as affording invaluable assistance in tracing stray freight and identifying it when delivered later than the shipment of which it was a part. He offered the following resolution, which was unanimously adopted:

Resolved, That we hereby instruct the secretary of our association to confer with the officials of the American Hardware Manufacturers' Association for the purpose of asking their cooperation in the correction of evils resulting from not having the initial numbers of shipments marked upon all boxes connected with that shipment, and also upon shipping tickets and bills of lading.

Shipment of Ammunition.

This subject was presented to the jobbers by Mr. Stoddard, traffic manager of the Ammunition Association, who referred to the accidents due to the shipment of explosives in bulk which have led to railroad regulations on the transportation of such products and Ammunition as well. He cited tests which have been made showing that small arms Ammunition and loaded Shot Gun Shells were neither explosive, combustible nor dangerous to handle. He argued that jobbers shipping a few boxes of Cartridges in a case with other merchandise should not be compelled to comply with the regulations suggested, and presented his case so strongly that the following resolution was adopted:

Believing that loaded Shells and fixed Ammunition are not high explosives, we protest against their being so classed by the transportation companies and direct that our association be instructed to carry out the spirit of the same.

Membership Committee of Manufacturers' Association

After the adjournment of the American Hardware Manufacturers' Association a meeting of President Kretsinger and the Executive Committee was held to consider some matters requiring prompt attention. Among these was the appointment of a Membership Committee, inasmuch as it is the intention of the association to take measures to increase its membership so as to make it more completely representative of the Hardware manufacturers of the country. There are also some applications for membership pending which it is desirable should come before the Membership Committee without undue delay. The committee appointed by the president in consultation with his Executive Committee is as follows:

FRED. S. MERRICK, Standard Horse Nail Company, New Brighton, Pa.
GEO. H. HARPER, National Enameling & Stamping Company, Baltimore, Md.
GEO. B. WILLSON, Hussey-Binns Shovel Company, Pittsburgh, Pa.
H. B. PLUMB, Eagle Lock Company, Terryville, Conn.
GEORGE M. NORTH, Lamson & Sessions Company, Cleveland, Ohio.
WALLACE L. POND, Nicholson File Company, Providence, R. I.
F. E. MUZZY, J. Stevens Arms & Tool Company, Chicopee Falls, Mass.
E. E. PERRY, Hopkins & Allen Arms Company, Norwich, Conn.
F. HERBERT SMITH, E. C. Atkins & Co., Indianapolis, Ind.

Reception at the White House.

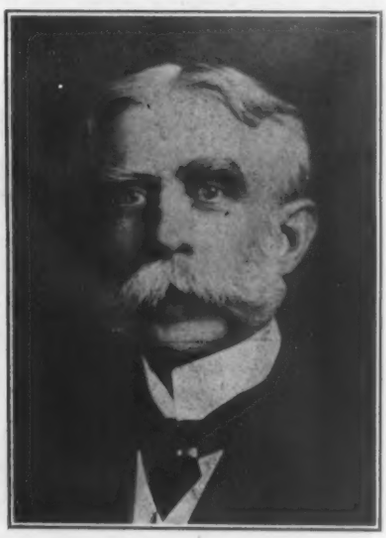
One of the most notable features of the convention was the reception tendered by President Roosevelt on Thursday afternoon. Manufacturers and jobbers, with their ladies, to the number of 900 proceeded in a body to the White House and gathered in the reception room. President Roosevelt said:

I want to say what a pleasure it is to greet this representative association of American business men here, and when I have made that greeting to the men, I want to go a little further and say that I am even more pleased to have the attendance of the ladies. The average American is a very good fellow, and the only better fellow, I think, is his wife. This republic has been prosperous chiefly through the extraordinary perfection of our business methods—through the efficiency and also the honesty of our business men. I am sure that our success depends not only upon efficiency, but upon absolute honesty in the conduct of our public life, in politics and in the business world.

After President Birge, of the Manufacturers' Association, had responded on behalf of the visitors, they were presented individually to the President, each enjoying his word of personal greeting and the hearty grasp of his hand.

Manufacturers' Delegates to Meeting of the National Retail Association.

A report had previously been made by C. W. Asbury and William M. Pratt in regard to their attendance at the last meeting of the National Retail Hardware Association. In it they referred to the very cordial reception given to them and the hearty invitation which was extended to the Manufacturers' Association to be represented also at their next meeting. It was accordingly moved that the Manufacturers' Association accept the invitation and that the incoming president be requested to appoint delegates to the Chicago convention of the National Retail Hardware Association and that the secretary notify the officers of that association that this action was taken by a unanimous vote.



F. S. KRETSINGER.

Next Place of Meeting.

Committees were appointed by both associations to confer with each other in regard to the time and the most desirable place for the next annual conventions. The manufacturers' committee consists of C. W. Asbury, Geo. P. Hart and H. B. Lupton. The jobbers' committee comprises W. W. Supplee, S. A. Bigelow, A. J. Bihler and T. James Fernley.

Officers of the American Hardware Manufacturers' Association.

We give below the names of the officers of the Manufacturers' Association who will be in charge of its interests during the ensuing year. It will be seen that F. S. Kretsinger succeeds J. C. Birge as president of the association and that with him are associated a number of gentlemen widely known and influential in the trade:

PRESIDENT.

F. S. Kretsinger, American Fork & Hoe Company, Cleveland, Ohio.

VICE-PRESIDENTS.

C. W. Asbury, Enterprise Mfg. Company, Philadelphia; George W. Corbin, Corbin Cabinet Lock Company, New Britain, Conn.; Wm. M. Pratt, Goodell-Pratt Company, Greenfield, Mass.

ADVISORY BOARD.

Julius C. Birge, St. Louis Shovel Company, St. Louis, Mo.

EXECUTIVE COMMITTEE.

Robt. Garland, Garland Nut & Rivet Company, Pittsburgh, Pa., chairman.; Samuel Disston, Henry Disston & Sons, Incorporated, Philadelphia; John E. Harbster, Reading Hardware Company, Reading, Pa.; William H. Hays, Iron City Tool Works, Pittsburgh; W. M. Taussig, Challenge Cutlery Corporation, New York; C. F. Carrier, Cronk & Carrier Mfg. Company, Elmira, N. Y.; Edward Ingalls, Atha Tool Company, Newark, N. J.; Edward M. Kemp, Wabash Screen Door Company, Chicago, Ill.

SECRETARY-TREASURER.

F. D. Mitchell, 309 Broadway, New York.

The administration of J. C. Birge was notably successful, and during his presidency the association attained a strength and dignity which have made it more than ever influential in the trade in connection with Hardware interests. To this result his ability and judgment, together with his attractive personal qualities, united in contributing. He is succeeded by F. S. Kretsinger, who from the first has been active in the association and occupies a high position in the trade as a widely known and eminent manufacturer. His character and ability and the honor and regard in which he is held furnish grounds for congratulation that the association is to be under his leadership during the coming year.

W. S. WRIGHT.

It will be observed that of the Executive Committee Robert Garland of the Garland Nut & Rivet Company, Pittsburgh, is chairman. The fitness of this selection will be recognized in view of Mr. Garland's ability and position in the trade, together with the fact that he as much as any one is to be credited with the organization of the association.

Officers of the National Hardware Association.

Following were the officers chosen for the ensuing year:

PRESIDENT.

W. S. Wright, Wright & Wilhelmy Company, Omaha, Neb.

FIRST VICE-PRESIDENT.

John C. Koch, John Pritzlaff Hardware Company, Milwaukee, Wis.

SECOND VICE-PRESIDENT.

Brace Hayden, Dunham, Carrigan & Hayden Company, San Francisco.

SECRETARY-TREASURER.

T. James Fernley, Philadelphia.

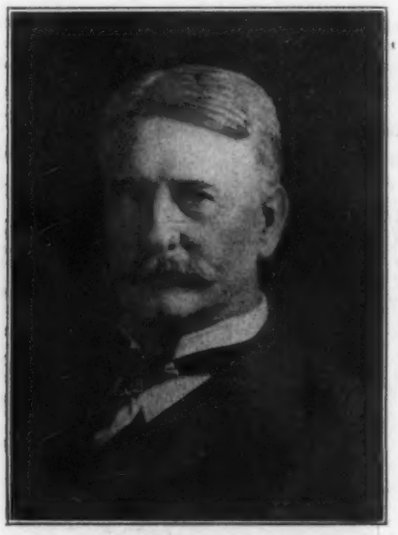
EXECUTIVE COMMITTEE.

P. E. Strauss, Fitz, Dana & Co., Boston; R. M. Dudley, Gray-Dudley Hardware Company, Nashville; A. J. Bihler, James C. Lindsay Hardware Company, Pittsburgh; W. D. Taylor, George Worthington Company, Cleveland; J. D. Moore, Moore & Handley Hardware Company, Birmingham; Fred-

erl- Barker, Barker, Rose & Clinton Company, Elmira, N. Y.

W. S. Wright, the new president of the National Hardware Association, has been for years a prominent merchant and of late has been active and efficient in connection with the work of the Joint Catalogue House Committee. He is endowed with a strong and genial personality and has an honorable position in the trade as a merchant of ability, character and success.

Mr. Bihler was chosen to fill out the unexpired term on the Executive Committee of W. S. Wright, elevated to



J. C. BIRGE.

the presidency. Retiring President S. A. Bigelow was elected to the standing Advisory Board.

On resigning the chair to the new president, Mr. Wright, Mr. Bigelow said:

I passed a good, round milestone only a month ago, and today I feel that I am passing another. The thoughts and memories that crowd one upon the other at this time are of mingled sorrow and pleasure—one sorrows for the friends who have passed on before, but happy in the thought so many still remain.

I hold in high appreciation the honor you conferred in making me your president, and have always endeavored to conduct the work of the association on a liberal and honest basis. If any one has been wronged or neglected it has not been done knowingly, for all we ever asked was a square deal. The support given me by your officers and the members has been most hearty. As president one has often to ask members to make personal sacrifices for your service, as many have done, who should receive the hearty thanks of the association.

In the details of the work the president must look to the secretary, and it gives him great pleasure to bear witness to his indomitable energy and honesty of purpose. He and I have been brought very closely together, and I can truly say he has been discreet and careful in his various intercouse with manufacturers and members. He has been always faithful in his work and I heartily recommend him to my successor, to whom I extend hearty greetings, with much sympathy.

J. H. Ritter of Philadelphia then brought forward four handsome pieces of silver, three large berry dishes and a pitcher, which he presented on behalf of the association to H. H. Bishop, John Bindley, R. A. Kirk and S. A. Bigelow as souvenirs in evidence of the esteem of the organization for them personally and in appreciation of their past services as presidents of the association. The recipients of these gifts made appropriate acknowledgments.

The Euchre Party.

The card party was held on Wednesday evening at the Arlington under the auspices of the ladies. Although a brilliant affair it was sufficiently informal to be greatly enjoyed by all present. Great credit was accorded to Mrs. F. P. May, Mrs. G. J. May and Miss May of Washington, who had the arrangements in charge, as well as to Mrs. G. W. Trout of Chicago, who was a charming mistress of ceremonies. Thanks to these ladies and the gentlemen who formed their corps of assistants the event passed off smoothly, although nearly 100 tables were made up. Ten games of four hands each were played at each table, and the player winning the largest number of games received his choice of the prizes donated, which were so numerous that most of the players secured some souvenir. A. A. Norton, official stenographer of the National Hardware Association, was the winner of the first prize. Among the donors of prizes were the following manufacturers:

Oneida Community.	Withington & Cooley Mfg. Co.
Kampfe Brothers.	Iowa Farming Tool Co.
E. C. Atkins & Co.	American Fork & Hoe Co.
Geo. H. Bishop & Co.	Miller Bros. Cutlery Co.
Irwin Auger Bit Co.	David Maydole Hammer Co.
Meriden Cutlery Co.	Samuel Winslow Skate Mfg. Co.
Supplee Hardware Co.	Davis & Cook.
Chapin-Stephens Co.	Wm. Schollhorn Co.
Fayette R. Plumb, Inc.	Kirk-Latty Mfg. Co.
Hopkins & Allen Arms Co.	American Wringer Co.
J. Stevens Arms & Tool Co.	John Chatillon & Sons.
American Axe & Tool Co.	Enterprise Mfg. Co.
Boss Washing Machine Co.	Clyde Cutlery Co.
Charles Parker Co.	Bronson-Walton Co.
Landers, Frary & Clark.	Ohio Tool Co.
Dana Mfg. Co.	McCaffrey File Co.
North Brothers Mfg. Co.	Dover Mfg. Co.
Manning, Bowman & Co.	Atha Tool Co.
J. D. Warren Mfg. Co.	Bissell Carpet Sweeper Co.
Stanley Rule & Level Co.	Goodell-Pratt Co.
Caldwell Mfg. Co.	Corbin Cabinet Lock Co.
Geneva Tool Co.	Oscar Barnett Foundry Co.

The Manufacturers' Reception.

On Thursday evening the manufacturers held an open session at the New Willard, followed by a reception. The meeting was presided over by Vice-President H. B. Lupton, who first introduced Theodore P. Shonts, chairman of the Panama Canal Commission.

Mr. Shonts gave a graphic statement of the problems and difficulties which had to be solved at Panama before digging could actually be begun and a comprehensive account of what had been accomplished, especially in the way of sanitary and commissary work. "If we have not," he said, "as our critics complain, made 'the dirt fly,' we have made the filth fly, and we have made the yellow

W. M. PRATT.

fever fly." He described the necessary enlargement and improvement of facilities for receiving and distributing the immense quantities of material which will enter into the construction of the canal, and read a list of Machinery, Rails, Cars, &c., to be purchased aggregating about $9,000,000. Mr. Shonts also touched on the great difficulty of the labor problem which, he said, was seriously complicated by attempting to apply the eight-hour law and other restrictions practicable only in this country.

Following Mr. Shonts, Gifford Pinchot, Chief Forester, spoke of the problems confronting the Government in its efforts to forestall a timber famine, a matter which he declared to be of vital interest to all manufacturers, inasmuch as every industry is dependent more or less upon timber. He showed the importance of preserving the forests in distributing moisture and providing grazing land

for stock raising, and called for an awakened public sentiment on this subject, paying a warm tribute to the women of Pennsylvania and Minnesota, who have carried on a successful movement in favor of laws to establish forest reservations.

This concluded the programme as announced, but Mr. Lupton gracefully referred to the presence of another distinguished guest, whose name was honored for the work that he had done, and presented David Williams of *The Iron Age* as the "dean of trade journalism." Mr. Williams' response was singularly happy and to the point and was very cordially received. Referring to the fact that he had been connected with a trade paper for 50 years he called attention to the enormous changes that had taken place in that period, during which time iron and steel have come to occupy their present supreme position in the industrial world.

Following the meeting an informal reception was held, giving members of the associations an opportunity to meet the speakers, officers and guests. Dancing and promenade then began in the spacious ballroom, where a buffet supper was also served.

The reception was the chief social feature of the Washington gathering. It was an elegant affair, admirably carried out, and reflected much credit on the gentlemen directly charged with its conception and management.

The Banquet.

The annual subscription banquet given by the National Hardware Association was held on Friday evening in the ballroom of the New Willard Hotel. Between 300 and 400 ladies and gentlemen participated. Music was furnished by the hotel orchestra. The singing of several of the ladies was greatly enjoyed. The unique *menu* was tastefully printed and bound in bronze metal butts, furnished by courtesy of the Stanley Works, New Britain, Conn.

W. S. Wright of Omaha, the newly elected president of the National Hardware Association, filled the position of toastmaster most acceptably, introducing the following speakers, who responded to the toasts designated:

ROBERT GARLAND.

"Transportation," Hon. Theodore E. Burton, chairman Committee on Rivers and Harbors, House of Representatives.

"Department of Commerce and Its Relation to Business Development," Hon. James R. Garfield, Chief of Bureau of Corporations, Department of Commerce.

"Foreign Opportunities for American Trade," Hon. Oscar P. Austin, Chief Bureau of Statistics, Department of Commerce and Labor.

Mr. Wright also called on J. C. Birge, the retiring president of the Manufacturers' Association, who eloquently proposed "The Ladies," a toast which was drunk standing. Secretary of the Treasury Shaw was present and spoke briefly, as did G. E. Roberts, Director of the Mint. The banquet closed with the singing of "Auld Lang Syne."

CONVENTION NOTES.

A cordial vote of thanks was tendered by the National Hardware Association to J. H. Newkirk for his arduous labors as journal secretary, to J. J. McCaffrey for his self denying work as railroad secretary and to E. S. Jackson for his tireless efforts in preparation for the banquet. The work of Col. J. R. Nutting, chairman of the Press Committee, was also very much appreciated by all.

The unique *menu* and toast list, in the form of a bronze metal butt, was uniformly preserved as a memento of the banquet. Much appreciation was expressed for the courtesy of the Stanley Works, New Britain, Conn., in furnishing these souvenirs, and a vote of thanks was passed to George P. Hart as the representative of the company.

F. D. MITCHELL.

The presence of a number of Canadian manufacturers and jobbers was the occasion of much gratification. The introduction of these gentlemen at the opening session of the jobbers on Wednesday and the remarks of Cyrus A. Birge of the Canada Screw Company, Hamilton, Ontario, were referred to in our telegraphic report last week. At the Thursday morning session of the National Hardware Association William Vallance of Hamilton, president of the Canadian Wholesale Hardware Association, and T. H. Newman of Montreal, vice-president of the same organization, were presented and spoke most pleasantly of the trade relations between their country and our own.

All the representatives of the National Retail Hardware Association who are members of the joint committee on the catalogue house question were present at the convention, affording most able and dignified representation for their organization. Accompanied by their ladies, they made their headquarters together at the Shoreham Hotel and they were shown much attention both by jobbers and manufacturers. E. M. Bush of Evansville, Ind., and S. R. Miles of Mason City, Iowa, addressed the open session on the catalogue question Wednesday morning. President W. P. Bogardus, Mt. Vernon, Ohio, was also a speaker on that occasion. Other representatives of the retailers' association were M. L. Corey, Argos, Ind., secretary-treasurer, and T. Frank Ireland of Belding, Mich.

The jobbers' convention was much shocked at the Wednesday afternoon session by the reading of a telegram announcing the destruction by fire of the splendid new building of the Moore & Handley Hardware Company, Birmingham, Ala. A committee was appointed to prepare suitable resolutions and J. D. Moore, president of the company, who was present, received sincere expressions of personal sympathy from all.

In addition to the card party, the President's reception, the manufacturers' reception and the annual banquet, which may be referred to as the more formal events of the week, there was no lack of informal entertainment. Sight seeing is always in order in the national

capital and trips were arranged to Arlington, Mount Vernon, the Congressional Library and other points of interest. Visitors kept the public automobile service of the hotels pretty well engaged throughout the week and a special automobile sight seeing tour through the city was arranged for the jobbers on Thursday afternoon, which was largely patronized. Courtesies were extended to many delegates by the Corbin Motor Vehicle Corporation, which had one of its motor cars constantly in service for the pleasure and convenience of friends in Washington.

The executive officers of the American Hardware Manufacturers' Association gave a very enjoyable dinner

T. JAMES FERNLEY.

at the New Willard on Tuesday evening before the convention opened. Their guests were the officers of the National Hardware Association.

CATALOGUE HOUSE COMPETITION.

As chairman of the Wholesale and Retail Joint Catalogue House Committee, S. Norvell, of the Norvell-Shapleigh Hardware Company, St. Louis, presented the subject of catalogue house competition at the opening session of the jobbers' convention on Wednesday morning, to which the manufacturers were invited and which they attended in large numbers. After some general remarks Mr. Norvell introduced in turn Messrs. Bush and Miles, also members of the Joint Committee, who addressed the gathering on behalf of the organized retail Hardware merchants of the country. Their addresses will be found elsewhere.

Stereopticon Brought Into Play.

At the conclusion of Mr. Miles' address Mr. Norvell arose and said that he had prepared a large number of stereopticon views for the education of the delegates on the catalogue house question. The room was darkened and the pictures were thrown on a screen.

The first pictures were those of the buildings of the two largest catalogue concerns photographed from catalogues. The next were photographs of the claims made in these catalogues that these houses "would undersell everybody on earth."

Photographs followed of what was said in the catalogues about shipping goods direct from the manufacturers to the consumers and their shipping arrangements; also photographs of how the catalogue houses claim to avoid express charges by club orders made up among mechanics and farmers and shipping to one person by freight.

These pictures were all taken from the last two catalogues issued by prominent catalogue concerns.

Photographs were also shown of offers made by certain catalogue houses to their customers of 7 per cent. interest on sums of money deposited with them running up as high as $1000.

The price plan of the catalogue houses was shown, whereby people buying a certain quantity of goods receive a present of an organ, a gun or a sewing machine, which amounts to a cut of 5 per cent. on the goods sold.

The system of the catalogue house of distributing catalogues was shown, by which they pay people in the neighborhood to go around and scatter the catalogues and send the names of the farmers to whom they have given them.

The commission system of the catalogue house was shown, where they pay one farmer five per cent. to gather up orders from others. Fifty plates were shown comparing the retail dealer's cost with the prices quoted to consumers by the catalogue houses.

Then followed twenty-five telegrams from twenty-five of the largest houses in the country selling Hardware, representing a total capital of $25,000,000 and total sales in the Hardware line of over $100,000,000, and employing a force of 2,500 traveling men. These telegrams were from all parts of the United States—from Boston to San Francisco and from Minneapolis and St. Paul to New Orleans—and all of them stated that they did not sell catalogue houses; that in their opinion the only cure for this evil was for manufacturers to quit selling them; and that they did not believe in the controlled price idea—that is, the manufacturers controlling the catalogue house price. The great majority of these telegrams stated that both jobbers and retail dealers in purchasing goods should try as far as possible to avoid lines shown in the catalogues of catalogue houses.

Mr. Norvell said that as chairman of the Catalogue House Committee he had requested twenty-five of the largest jobbers, both association and independent jobbers, to give an expression of opinion on the catalogue house question and that only two had declined to be quoted on the subject, thus showing the unity of opinion of the jobbers upon this question.

A Series of Questions or Arguments

prepared by the committee was then shown on the screen as follows:

1. If railroads should give a few shippers an advantage of 20 per cent. over others, would not this be unjust discrimination? Would the Government stand for it?

2. If certain manufacturers sold a few jobbers at 20 per cent. lower than the rest of the jobbing trade, how long would their goods be carried by other jobbers?

S. NORVELL.

3. Is not a catalogue house selling to consumers a retail dealer?

4. When a manufacturer sells his line of goods to a catalogue house at 20 per cent. less than the retail merchant can buy the same goods, is not this unjust discrimination?

5. Is not the controlled price theory wrong in principle? Should the catalogue houses enjoy a jobbing and retail profit?

6. Do not such double profits on certain lines place them in position to do business without profit on other lines?

7. When a manufacturer sells his line to catalogue houses upon the controlled price theory, thus enabling them to enjoy all the jobber's profit and all the retail merchant's profit, does

he not, by affording them this double profit, help the catalogue houses carry on their warfare, in the form of cut prices, against other manufacturers who have declined to sell them?

8. Have not manufacturers who were sincere and determined in their efforts not to allow catalogue houses to obtain their goods through indirect sources shown that it is possible to cut off their supply?

9. If a manufacturer admits that he is afraid catalogue houses will cut prices on his goods, and therefore he does their

E. M. BUSH.

bidding, would it not be only logical for jobbers to obtain protection from this manufacturer in the same manner?

10. Is not the key to the solution of this catalogue house question in the hands of the manufacturers, simply because catalogue houses cannot obtain extreme prices on their lines from any other source?

11. Is any jobber to-day, of any standing, selling catalogue houses, or can he afford to take the chances of selling them?

12. Do not far-sighted manufacturers realize that the profit both jobber and retail merchant can make on their goods is one of their best assets?

13. When a retail merchant cuts a price is not the demoralization only local? When a price is cut by a catalogue house does it not cover the entire country and affect every dealer regardless of local conditions?

14. Is not the entire Hardware trade of the country, wholesale and retail, a unit in its views on the catalogue house evil?

15. Is not the only difference of opinion between most manufacturers and all jobbers and retailers simply a question as to the remedy that should be applied to the evil?

16. The Joint Committee believes the only remedy is to quit selling catalogue houses. If there is a better remedy it has not been suggested.

17. It is only fair to those manufacturers who have quit selling catalogue houses that the entire jobbing and retail trade of the country should know the position on this question of every manufacturer and jobber in the Hardware, Sporting Goods and Cutlery lines.

18. Do the manufacturers of Guns and Rifles realize that on account of the competition of catalogue houses small merchants are not stocking their goods? Where formerly good stocks of these goods were carried all over the country, it is now the exception to find a complete stock in any medium size or small retail store. Merchants tell the jobber's salesmen there is not enough money in the goods to pay for the investment of stock. They are trying to do business by taking special orders.

It is clearly not to the interest of either manufacturers or jobbers to have retail merchants quit stocking any lines of goods.

It may be interesting to Hardware jobbers to know that the catalogue houses are obliterating on those makes that the manufacturers have refused to sell them the serial numbers on Guns and Rifles they obtain through indirect sources. The manufacturers of such Guns and Rifles are refusing to guarantee or to replace any of their goods on which the serial numbers have been obliterated. This information should be given by jobbers to their salesmen.

Some have been of the opinion that this catalogue house agitation would die out. Some have pursued a neutral policy in the hope that things would blow over. This is a mistaken policy. The retail merchants in a large part of this country are in direct competition with catalogue houses every day—they cannot forget this competition, it is constantly impressed upon them.

Therefore, even if this Joint Committee passes away others will rise up to take their place and carry on the fight of an irrepressible conflict. The system of selling goods through jobbers and retail merchants and through catalogue houses cannot and will not exist in this country side by side.

Every Hardware and Sporting Goods jobber in this country should see that his buyers have on their desks the catalogues of Montgomery, Ward & Co. and Sears, Roebuck & Co. He should see that every buyer is thoroughly posted on the lines of goods sold by these catalogue houses. He should have his buyers study their prices.

One of the greatest obstacles the Catalogue House Committee has had to overcome on this question has been the lack of definite knowledge on the part of manufacturers and jobbers, and also editorial writers of trade papers. Many men have expressed their opinions who did not know what they were talking about, and could not tell what was being offered by these catalogue houses on the various lines if you asked them.

The Retail Hardware Trade Association should impress upon their members the great importance of their being supplied with the catalogue, so they will know the prices that are being made and the lines of goods being sold by these catalogue houses.

Mr. Norvell then said that the object of this presentation was educational and that this would probably be the last time that the catalogue question would be discussed in open meeting.

ANNUAL ADDRESS OF PRESIDENT BIRGE.

The many important and far reaching questions which are liable to come before this convention for your consideration lead to a statement which may illustrate the close relations existing between us and the interests with which we have to deal. The proposition is that agriculture, manufactures, commerce and education are cornerstones in the temple of American progress. As active factors in our national life they should operate in perfect harmony toward the development of our material resources, in the prosecution of our individual duties and in the uplifting and betterment of mankind. As each is absolutely dependent upon all the others it would be absurd for either of these factors to ignore the others or assume to be independent of those vital relations which bind them all together.

S. R. MILES.

We see agriculture wake the slumbering forces of the soil and cause the once barren wilderness to yield the food which every human being requires. The manufacturer from the crude materials found in rock and forest shapes the infinite variety of useful articles upon which every civilized man is dependent. At the bidding of merchant princes commerce sends the white winged mes-

sengers of peace across every sea and on land distributes to every home nearly every desirable article needed for every human want, while education gives to all the training which prepares them for this work and fits them to enjoy its fruits.

Should any one endeavor to escape this dependency and live as a hermit in the depths of the forest he would find that the clothes which would protect him and the gun upon his shoulder are supplied from the joint service of the manufacturer and merchant. With the consciousness of these closely interwoven relations and in the interests of perhaps the most extensive department of manufactures, the Iron, Steel and Hardware industry, we are this week to be brought into conference with representatives of an important branch of commerce with which we are closely associated—to-wit: the Hardware jobbers.

THE PURPOSE OF THESE CONCURRENT GATHERINGS

is, as we believe, to promote and continue pleasant mutual relations, to advance the interests of manufacturers, to adjust if possible in a friendly manner any matters which may be causes of inconvenience or friction and incidentally to infuse into our otherwise severe business relations the genial influence of social life.

There are branches of commerce other than mercantile in which we are also vitally interested, not the least of which is

RAILROAD TRANSPORTATION.

Matters in which we have interests in common with the railroads are to be presented at this convention and will doubtless receive your consideration. Possibly no two men could be found in the United States who were better qualified to discuss the merits of the old Esch-Townsend bill than were Secretary Taft and President Spencer, who discussed the matter at Hot Springs.

The so called Interstate Commerce Law Convention assembled in Chicago on October 26 and to it a delegation was sent from this association. We were asked to sign and return a proxy, a form of which was sent us, providing that the vote of this body be cast in favor of a specific policy as indicated.

It is reasonable to assume that no officer of this association would commit this body in such a slipshod manner. Every member of this association should be a factor in any general pronouncement of views upon any subject wherein a declaration of principles is made. We expect a brief report on this convention.

RECIPROCITY AND TARIFF.

In August last a convention was held in Chicago, at which was considered the questions of reciprocity and tariff revision. Our relations, especially with Canada, make the subject one of interest. A report from the chairman of our delegation will be presented.

On a former occasion there was presented to you some statements concerning the destruction of the great forests of the United States—a matter of tremendous importance. You will be greatly interested and instructed on this subject by Hon. Gifford Pinchott, Forester of the United States, on Thursday evening.

Agriculture not only represents the great producers of our country, but the agriculturists are among the most numerous consumers of your products. Our present method of transacting business and the

SINKING OF OUR IDENTITY

conceal us so completely from the consumers of our wares that they can hardly realize that we are factors in their interest, and yet we must always have their wants in mind. In fact, upon them we are primarily dependent for our trade, and they are dependent upon us for the goods.

If the manufacturer, the merchant, the transportation company and the consumer are thus dependent one upon the other it is manifestly important that the methods of conducting affairs shall be along fair, natural and proper lines and in harmony with honorable business principles. If there are wide differences of opinion as to what are for the best interests of either of these departments as they bear upon any question of mutual concern these interests may be profitably considered only through a spirit of friendly reciprocity. The interdependence of all these interests is so absolute that neither can wisely dictate terms. In the light of these suggestions it seems proper briefly to mention some of

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entirely the beams in your own. You have concentrated a telescopic mind upon the evils of the catalogue houses until they have become magnified beyond all proportion.

BETTER FAR

should you turn this instrument upon your own affairs in an endeavor to meet this competition by searching for methods of economy and assisting the retail Hardware merchants in order that they may be able to offer to the consuming public in service and efficiency what no catalogue houses can ever supply.

Are you, gentlemen of the National Hardware Association, offering to the retail Hardware merchants of this country the maximum of service at the minimum of cost, or have you in reaching out into territory far from your base increased your costs of distribution until they have become excessive?

And you, gentlemen of the National Retail Hardware Association, are your stocks well assorted and your stores well kept? Are you studying carefully the needs of your constituents, are you alive and quick to adopt modern trade getting methods? Do you advertise to the consuming public, keeping your name before them and pointing out the advantages of your wares? Are you quick to take hold of anything new which may interest your customers, and are your clerks alive to the necessity of showing up what they have to sell?

I venture the assertion that those of you who can answer these queries in the affirmative never have, are not at the present time and never will suffer severely from catalogue house competition.

CANNOT BE THROTTLED.

The evils which you so desire to correct can never be corrected by an attempt on your part to throttle the catalogue houses by cutting off their source of supply. The great consuming masses of this country will not stand for it; they hold the balance of power; without their demands your warehouses would be closed and our factories idle, and any attempt on your part to drive out of business a distributing medium which may appear to them a convenience if not an economy will result in failure and react to your own injury.

THE CATALOGUE HOUSES WILL CONTINUE TO EXIST

regardless of this agitation, and such goods as they require they will be able to procure, not withstanding all your efforts to prevent it. Now this is not a subject which can be taken up by the Manufacturers' Association as a whole and acted upon as an association. Certain manufacturers have already declared themselves as declining to sell this class of trade; some of them tried to and could not; others of our members never came in contact with them at all, and still others who have formerly sold them directly or indirectly have acceded to the wishes of their jobbing friends and taken a step which I believe each and every one of them will live to regret. The only way you can put the catalogue houses out of business is to

EDUCATE THE CONSUMING PUBLIC

so that they will not buy from them. Just so long as the consuming public regard them as a convenient source of supply, just so long will they continue in business.

WHAT IS THE CAUSE

of all this disturbance? Unprofitable prices. Who is to blame for them, catalogue houses alone? Far from it. Sometimes the manufacturer through an over zealous desire to secure an order from a competitor's customer, or because of a surplus of goods and a shortage of cash, feels that he must turn his stock into money.

Sometimes the jobber in reaching out into fields far from his base is obliged to offer some special inducement to secure a foothold; or in an endeavor to secure an order for special brand goods, which carry a large profit, is willing to sacrifice his profit on manufacturer's well known brands which always meet with ready sale.

Then again the retail merchant will occasionally cut prices; perhaps he has more goods of some certain kind than he requires and wants to sell them; perhaps his neighboring competitor has upset the market and he must meet him; perhaps trade is sluggish and he hopes to stimulate it.

EVILS OF THIS CHARACTER

are bound to crop out occasionally under our present competitive system. They can be corrected in a measure but never eliminated entirely. You can pick out individual items upon which the catalogue houses are making ridiculously low prices and I will find you retail merchants who have gone them one better. To go to the other extreme I have known men in the retail hardware trade in this country who have deliberately marked articles costing them $12 per dozen at $2.50 each and wondered why they did not sell.

Perfection does not reign largely on this universe and in our present day commercial life there is plenty of room for improvement, but I claim that the catalogue houses individually and collectively are no more to blame for the present unsatisfactory condition of certain prices than the jobbers, retailers or manufacturers individually or collectively; and the sooner you cease your warfare on them the sooner will you be able to accomplish the ends which you are now striving to attain.

YOU ARE HAVING THE SAME TROUBLE

to-day with the catalogue houses that you had among yourselves a dozen years ago before your present organization was completed. You had tried for years to fight it out with your neighboring competitors and the warfare was disastrous to both. You have perfected your organization and the warfare among yourselves has ceased.

Now I am not attempting to defend any individual catalogue house, neither am I defending all of the methods employed by catalogue houses as a class, but I am defending this method of distribution. It is a legitimate one and will continue in vogue just so long as the consumer sees fit to employ it.

THIS CONDITION IS NO MORE SERIOUS

than nor does it differ materially from that which confronts nearly every manufacturer at some time in his career. He finds after having diligently worked toward the development of trade upon certain lines and met perhaps with considerable success that some larger, better equipped or perhaps more ingenious competitor has duplicated his product and is offering it at less than his actual cost. Unless the goods of that particular manufacturer have an individuality with the consuming public he must meet the prices or he is bound to lose his trade. He cannot continue to sell goods at a loss, and he is forced to devise means and methods sufficiently economical to enable him to compete at a profit.

He might go about the country making an amount of noise, but it would not avail. Perchance, could he invoke the gods of war and, assembling them within the inner chamber and behind closed doors, invite the various jobbers of the country to come there and define their position, notoriety he might gain, but not the results desired. He might even be so bold as to attempt to cut off the source of his competitor's supply of material. How much do you think that would avail?

Now all that is written and all that is said about catalogue houses is

ONLY ADVERTISING THEM

to the consuming public. While you are endeavoring to make it more difficult for them to obtain goods they are increasing their efforts to sell, and stirred by their success aspirants for similar honors are starting new catalogue houses in the East, in the West, in the North and in the South, for any dealer who publishes and circulates freely a net price-list to the consuming trade must be considered a catalogue house. It is the principle which you assail.

CULTIVATED BY THE JOBBERS.

The present large catalogue houses of this country were nursed by you during their infancy; now you have forgotten your mother love and are attempting to disown them. You sold them all the goods which they required until their purchases became so large that it was necessary for them to deal with the manufacturer direct, and

from that moment your warfare against them began. Are you as particular about declining to sell these new catalogue houses that are springing up now in their infancy as you will be when they have become larger factors in trade? Or are you willing to supply their wants while they are small and when they begin to assume proportions and become important avenues of distribution will you ask the manufacturers to assist you in shutting off their supply? If this sounds strange to you, let me call your attention to the fact that truth is stranger than fiction.

SOLUTION RESTS WITH CONSUMERS.

In closing let me say that the solution of this problem rests wholly and entirely with the consuming public. Go to them, convince them that the retail Hardware merchant can render better, more efficient and as economical service as the catalogue houses, and you have nothing to fear from their competition. Until you do that this method of distribution is bound to continue an important one.

THE CATALOGUE HOUSE QUESTION.

ADDRESS BY E. M. BUSH OF EVANSVILLE, IND., VICE-PRESIDENT OF THE NATIONAL RETAIL HARDWARE ASSOCIATION.

As one of the representatives of retail Hardware interests and a member of the Joint Committee I am glad of this opportunity to meet with you and discuss the burning question of catalogue houses. The worthy and honored president of our national retail organization, our national secretary, the chairman of the Joint Committee and other official sources, with the discussion of this matter in the trade press, have left me no new arguments to bring to you, nor would the ten minutes allotted to me permit logical presentation. My idea is that we may have for a short time a heart to heart talk about the matter.

RETAILERS' BUSINESS COST 20 PER CENT.

May I ask how many of you manufacturers have, like the retailers, taken one of these catalogues home and gone carefully through it, noting the prices and the goods of your manufacture that they illustrate and sell? You know what the catalogue house has paid for them, you know what the jobber has paid for them and you also know what the jobber is expected or required to get for them from the retailer. I want to say, and I base my knowledge upon well established facts, that a retailer who pays rent and pays himself a salary cannot do business under 20 per cent. Remember that the volume of business done by retailers does not run into the millions or even hundreds of thousands of dollars, as does your business. Sales of $30,000 to $40,000 a year for a retailer is a very fair business; 20 per cent. of the first amount is $6000, of the latter $8000. An attempt to pay freight, drayage, taxes, rent, insurance, advertising, donations to all sorts of enterprises, stenographers, clerk hire, bookkeeper, collector, &c., and to yourself a moderate salary out of this will quickly convince you that I have made no misrepresentation as to our cost of doing business. Knowing then that it costs the retailer not 1 per cent. less than 20 per cent. to do business, seeing how little margin there is upon your goods for the retailer if he meets the price, which he is obliged to do more and more, have you not wondered how he can do it and meet his obligations? We are up against a condition, not a theory.

We retailers have no means of knowing the cost of manufacture, but we have the intelligence to judge of relative values, and we know that the manufacturer, except perhaps when the volume of business runs into millions, cannot make money where his products are sold hardly above the actual cost of production, counting nothing for marketing same, wear and tear of machinery, salaries, rent, taxes, insurance, &c. If you cannot do this with your volume of business should the retailer be expected to grow rich and opulent upon his? Let me assure you that

THESE CATALOGUES ARE IN VERY GENEROUS CIRCULATION

throughout the entire country, and the only reason they are not in the hands of practically every rural household at least is because the cataloguers do not yet know all rural names; but these firms are turning heaven and earth, and I fear some Postal Department officials, to contrive some way to reach them all. For instance, the recent order that was issued by the Postal Department that mail be delivered upon rural routes by numbers only. While we have succeeded in having this part of the order held up, the Department still insists upon mail boxes being numbered—to my mind a most foolish proposition—for before the numbering is completed upon a rural route some new family moves in or builds upon it and what will their number be? In order to keep intact the numbering of these routes will the next official ruling be that no farm upon the route can be subdivided and built upon, and that every newcomer must settle at the end of the route? Why is numbering insisted upon? Does something lie behind it?

ALLOW THE PRESENT DEPLORABLE

and unprofitable condition brought about by catalogue houses to continue at the expense of the retailer and you face not a theory but a condition, serious to yourself and the country, when these houses become so numerous and strong by syndicating that they can dictate to you the prices they will pay for goods or start factories of their own. Let us consider for a moment which system—for one or the other must eventually prevail—will bring the greatest output for factories, and which system will tend to produce the highest grade articles.

The catalogue house illustrates your wares with small indifferent cuts, setting forth their virtues in a size type that requires a reading glass to decipher and depends upon cut prices to market these wares, and a cut price inevitably cheapens merchandise.

IF THE RETAILER IS SUPPLANTED

by the cataloguer, with him goes the trade press and a large proportion of a city and country press, for the retailer is the direct support of the latter and the trade press receive their support from the manufacturer who uses the papers to reach the retailer. No retailers, no trade press.

The retailer, besides advertising your wares in his local papers, displays them in show windows and in well arranged stores, calling attention to their merits through progressive, wideawake salesmen whose end is to create the desire for possession. Who knows better than yourselves that seeing an article creates a desire for it? How often have you in reading advertisements in magazines resolved to send for that article and never carried your resolve into execution? But see in a show window something you desire, you step in and possess it, and so with other members of our household. The retailer's desire

IS TO SELL THE BEST

and most profitable line, avoiding investing in and talking inferior cut price goods. Hence I claim that by supporting the retailers in this fight you are helping to win your own battle, having in them an influence always at work to create a demand for more goods, and from them comes a more constant demand for better goods that bring a good profit.

I attribute the demand there is now for cheap and inferior goods to the influence of the cataloguers, ten cent, racket and department stores, who are forever beating down the price and looking for leaders, that bane and curse of commercial life of to-day. If the change in system is brought about it will be much easier for the retailer with comparatively small investment

TO CHANGE HIS VOCATION

than for manufacturers to adjust themselves to conditions that will be irksome, to say the least, or have for competitors a syndicate of mail order houses with factories of their own—which will surely be the development of that system.

We appeal to you, not as servants worthy of their hire, but in all the dignity of free born American man-

hood, as men who believe in a square deal and who do not believe we are receiving a square deal, when after investing in, displaying and talking the quality and merits of your wares and assisting in making them household words in American homes, you manufacturers sell to or permit to be sold by cataloguers those wares which are used by them to knife your friends in the back.

In my own place of business there are some tools that have been sold continuously by my predecessor and myself for fifty-two years, long before a catalogue house was dreamed of, and I am glad to say I have never seen these tools illustrated, priced or named by any cataloguer.

RETAILER DEFENCELESS.

What possible argument has a retailer with a customer who brings into his store one of these catalogues with number, size and name of manufacturer upon an article quoted at a less price than you can possibly sell and even make expenses? I have been up against this very proposition time and time again and it made me feel like thirty cents.

The retailers in our organizations appreciate the wonderful progress that has been made in this work, for a comparison of the latest issues of the catalogues with those of only two years ago show that many prominent manufacturers who were greatly in evidence then have disappeared now and, we believe, forever from these pages.

There is an old Arabic prayer of good wishes, "May your shadows never grow less," and I give it to you heartily; but may the name of every one of you vanish in like manner as have these other names of which I speak from the pages of every catalogue in the country, for then will the retailer come into his own again.

THE CATALOGUE HOUSE QUESTION.

ADDRESS BY S. R. MILES OF MASON CITY, IOWA, MEMBER OF THE EXECUTIVE COMMITTEE OF THE NATIONAL RETAIL HARDWARE ASSOCIATION.

I thank you for this opportunity to present, as a member of the Wholesale and Retail Joint Committee, some phases of this catalogue house question from a retailer's point of view. In a great deal of discussion of this question it seems to me the retailer himself has not been taken into consideration, and that he has been criticised by those having little knowledge of the subject or people they have been wont to discuss. Such criticism is not only unfair but unjust, and instead of bringing the three interested parties to this discussion—namely, the manufacturer, the jobber and the retailer—into close and more friendly relationship, so far as the retailer is concerned it has had exactly the opposite effect. I would like you this morning, if you can, to place yourselves in the position of retail Hardware merchants, forgetting for a time your own ideas on this subject and considering the question from a retailer's point of view.

It has been said, and with reason, that a single fact is worth a cartload of argument, and I shall try to refrain from dealing in glittering generalities of which, it seems to me, we have had quite enough in the discussion of this subject, and to confine myself to facts as best I may. If my presentation of this question this morning is in an argumentative way, kindly attribute it to the habit necessarily acquired by a retail salesman of presenting facts in this way, rather than any desire on my part to take up your time with more argument. There will be presented during this session a number of facts and figures in a way that must be more convincing than anything I can say to you, and in a more comprehensive way than I believe the same facts and figures could be represented by any other method. With a knowledge of what is coming later I will only call your attention to two or three matters having a bearing on the subject ununder discussion that I think may not be touched upon later.

GENERAL OR LOCAL.

One of the questions frequently asked by those not familar with the subject is: Is this catalogue house question general or local, or does it exist largely in the imagination of the retail merchants? To be able to answer this question fully and intelligently, on October 20 I caused to be mailed out through the secretaries of a number of Hardware associations a circular letter in which I enumerated 32 lines very generally carried in stock by the retail Hardware merchants of the country, requesting the merchants receiving them to check the various items on the list on which they were most frequently called on to meet the catalogue house price. While I knew something of the extent of the territory covered by the two prominent catalogue houses, I was very much surprised on checking replies received to note that they were from Minnesota on the north to Texas on the south; Massachusetts on the east to Washington on the west; and was still further surprised to find more items checked on the same number of replies on the lists from Washington and Connecticut than from Wisconsin and Iowa. In this connection I will give you a few of the prominent lines indicated, simply giving you the percentage as to the whole number of replies received:

	Per cent.		Per cent.
Ammunition	60	Blacksmiths' Tools and Supplies	60
Builders' Hardware	60	Cream Separators	40
Cutlery	30	Guns	93
Hay Tools	50	Mechanics' Tools	80
Poultry Fence	55	Sewing Machines	60
Sporting Goods	70	Stoves	85
Tin and Enameled Ware	40	Washing Machines	50

MEETING THE PRICE.

The point I desire to bring out by this comparison is: What avenue of escape is there left open for the retailer if he is obliged to meet the catalogue house price on 32 different lines of goods carried by him? May I ask what lines are left open to him on which he can hope to redeem his business and make it profitable? There is but one reason why a Boston jobber can go to Iowa and sell his wares; that one reason is simply price. That same reason, price, is the real and only foundation upon which the catalogue house of to-day is able to build and maintain its business. The same weapon placed in the hands of the retail Hardware merchant or taken from the catalogue house would go a long way toward the solution of this troublesome problem. "Do it now" is a trite saying in very common use to-day, and the retail Hardware merchants of the country are saying to the manufacturers to-day "Do it now." Cut the catalogue house off your list. If it result in a still further slaughter of prices let it come. We are ready for the fray. As you must be convinced before this session closes, we cannot now profitably meet catalogue prices, and their ability to secure standard, well-known brands of Hardware through legitimate and regular channels will injure all far more than a still further slaughter of prices will injure the retail merchant.

RETAILER'S EXCESSIVE PROFITS.

We have sometimes heard the great growth and present business of catalogue houses charged up to excessive profits demanded by the retailer, this profit sometimes even amounting to graft. Among other duties assigned me as a member of this committee one was to tabulate a list covering certain lines of Hardware for use at this meeting. The task became such an interesting one that I did not confine myself to the lines assigned, but made up a list of more than 150 items, covering pretty generally the various lines carried by the average retailer. A number of these items were figured by discount, but 122 of them were figured net, either by single piece, dozen or gross. I find these 122 items would cost the retailer $158.94, against the catalogue house cost of the same items of $160.08. Now if this list of goods were sold by the merchant at his exact cost, without freight or even one small percentage of profit added, it would pay him a gross profit of $1.14, or about three-quarters of 1 per cent. Speaking of graft, this is certainly a direct example. Now if you will add to the merchant's cost 5 per cent. to cover freight and cartage and 20 per cent. for the cost of doing business, making a total of 25 per cent., and deduct from this his excessive profit of three-quarters of 1 per cent., you have a difference and an actual loss of 24¼ per cent.

PAGINATION

INCORRECT

Put yourself in a retailer's shoes; how would you like it?

But you may say any dealer who will pay the prices used in this schedule is not entitled to any consideration. I will furnish any jobber or manufacturer in this room or out of it a copy of the items and prices used in making this comparison, and if they will agree to supply the same goods at a material saving in cost to the retailer I will undertake to put them in touch with a volume of business that will prove very gratifying both in quality and quantity. Making this comparison was not in my mind when making up this schedule. It was suggested as the work progressed. The prices used are those at which any live retail Hardware merchant can purchase the goods enumerated. But I have every reason to know the prices used are lower than are being made to the average dealer, either by the jobber or by the manufacturer, making the condition from the standpoint of the average retail merchant a still more grievous one.

SIDETRACKING THE JOBBER.

Occasionally some writer for the trade press solemnly and wisely informs us that business conditions have changed and that the manufacturer must go direct to the retailer, if not to the consumer, to market his products. In this connection I have compiled some figures that I think will prove interesting. In making up these figures I requested a jobber selling Southern trade, one selling Eastern trade and a local Iowa jobber to send me a few copies of orders just as they were received from their customers. I made this request without disclosing in full my reasons; but notwithstanding, they responded very promptly, and I think a brief study of their replies will prove not only interesting but instructive. I will give you the State from which the order was sent, the number of items and the number of factories with which it would be necessary to place orders to cover the various items. An order from Texas of 31 items coming from 10 different factories; Louisiana, 20 items from 12 different factories; Missouri, 36 items from 17 different factories; Mississippi, 58 items from 22 different factories; Arkansas, 60 items from 26 factories; Missouri, 28 items from 12 factories; Massachusetts, 76 items from 15 factories; Maine, 200 items from 34 factories; Iowa, 52 items from 17 factories at a total cost of $50.82, or about $3 for each factory order; Iowa, 39 items from 19 factories, a total of $75.95, or less than $4 for each factory order; Iowa, 53 items from 27 factories, $74.08, or about $2.75 for each factory order.

While orders of the size indicated above might be satisfactory to the manufacturer, the placing of 40 orders with as many factories to cover 90 items would not be satisfactory to the retail merchant. I think these figures will serve to show that the retail Hardware trade is not yet ready to go to the manufacturer direct in order to supply all of their wants, and that there is not only a very wide field of usefulness for the jobber but a decided reason for his existence on the part of the retailer.

TOO LIMITED STOCKS

carried by the average retailer are also frequently urged as a reason why the catalogue houses have been able to build up their present business. Let us consider for a few moments what it would mean to the retailer to buy a majority of his supplies from the manufacturer. It would mean one of two things—a still more limited assortment or an increase in capital invested. It is very much of a question even if the retail Hardware merchant in any locality were able to and did sell every dollar's worth of Hardware in the territory belonging to him, if he would be justified in multiplying his present investment in stock by two and a half, which would surely follow were the jobber to be eliminated.

As a patriotic American citizen as well as a retail Hardware merchant I am proud of the high rank the American Hardware manufacturer has attained among the Hardware manufacturers of the world, standing, as he surely does, at the very pinnacle. And I congratulate you on this proud achievement; but lest you forget, I ask if you will consider for a few brief moments at least one element that has made this success possible?

ASK YOURSELVES IF SUCCESS

without the aid of the "man behind the gun"—the more than 25,000 active, energetic, loyal retail Hardware merchants of the United States—can continue? If it can there is little use to continue this discussion. If not, what then? But you say we want and must have the continued assistance and co-operation of the retail Hardware merchant. Let us suppose you have had in your employ a man that has been with you for years. This man has been an intelligent, faithful employee; has been an important factor in the successful conduct of your business. You call him into your private office and say to him: "John, you have been in my employ a great many years; I appreciate what you have done for me and I want you to continue in my employ, but owing to changed business conditions it will be impossible to longer continue your name on the payroll." How long would John stay? The retail Hardware merchant of to-day is John. We care little for words of praise and flattery; what we want is our names on the payroll. Without this you cannot hope to continue to receive that hearty and enthusiastic support that has marked the past and surely contributed to your success.

In the discussion and the handling of this question the retail Hardware merchant has undoubtedly made some mistakes. But in considering them we ask you to throw about them that same mantle of charity that he has used in considering your attitude on the catalogue house question. That mantle, while new, seems from the viewpoint of some manufacturers at least to be big enough and broad enough to cover the entire catalogue house question, the mantle of changed conditions.

MANUFACTURERS PRESENT.

AMERICAN SCREW COMPANY, Providence, R. I.: William G. Smythe, H. A. Taylor.
AMERICAN STEEL & WIRE COMPANY: D. A. Merriman, A. B. Wayne, T. H. Taylor, T. B. Cole, W. H. Foege, E. G. Jaques.
AMERICAN IRON & STEEL MFG. COMPANY, Lebanon, Pa.: Charles P. King, H. A. Wagner.
AMERICAN SHEET & TIN PLATE COMPANY, New York: Howard M. Davis, Thomas W. Simpers.
AMERICAN AXE & TOOL COMPANY, Glassport, Pa.: E. E. Corey.
AMERICAN CAN COMPANY, New York: Chas. Stollberg.
AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: F. S. Kretsinger, J. A. Carter, T. H. Russell.
AMERICAN WEINGER COMPANY, New York: A. G. Beardsley, Jr., G. H. Jantz, James Richens.
AMES SHOVEL & TOOL COMPANY, Boston, Mass.: Hobart Ames, Charles H. Myers, S. S. Early, C. S. Hubbard, Lynford Rowland, Jr., C. F. Reichner, J. P. Tabb, Henry A. Urban, Samuel D. Burrell.
ATKINS, E. C., & Co., Indianapolis, Ind.: N. A. Gladding, W. L. Sandford, F. Herbert Smith, J. F. Carey, E. S. Taylor, A. S. Bailey.
ATHA TOOL COMPANY, Newark, N. J.: Henry G. Atha, Edward Ingalls.
ATLANTIC SCREW WORKS, Hartford, Conn.: A. W. Bowman.
AVERY STAMPING COMPANY, Cleveland, Ohio: Henry W. Avery.
BALDWIN FORGING & TOOL COMPANY, Columbus, Ohio: Frank M. Baldwin, John E. Pilcher.
BARNES, WALLACE, COMPANY, Bristol, Conn.: Carlyle F. Barnes, A. B. Way.
BARNETT, G. & H., COMPANY, Philadelphia, Pa.: Joseph M. Hottell.
BEALL BROS., Alton, Ill.: Ed. Beall.
BELDING-HALL MFG. COMPANY, Chicago, Ill.: Jesse E. Hall.
BEMIS & CALL HARDWARE & TOOL COMPANY, Springfield, Mass.: Howard R. Bemis, John C. Beggs, Edwin L. Bemis.
BELFONT IRON WORKS COMPANY, Ironton, Ohio: T. G. Gilfillan.
BOMMER BROTHERS, Brooklyn, N. Y.: Gustav Bommer.
BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Louis E. Dietz, E. L. Enneking.
BOSTWICK STEEL LATH COMPANY, Niles, Ohio: Wm. G. Hurlbert.
BRIDGEPORT CHAIN COMPANY, Bridgeport, Conn.: W. B. Lashar.
BRONSON-WALTON COMPANY, Cleveland, Ohio: A. E. Bronson, A. E. Bronson, Jr., W. H. Brooke.
BRYDEN HORSE SHOE COMPANY, Catasauqua, Pa.: George R. Holton.
BULLARD AUTOMATIC WRENCH COMPANY, Providence, R. I.: F. C. Thornley.
BUFFALO FORGE COMPANY, Buffalo, N. Y.: Chas. Holloway, Jr.
CALDWELL MFG. COMPANY, Rochester, N. Y.: J. G. O'Brien.
CARNEGIE STEEL COMPANY, Pittsburgh, Pa.: W. G. Clyde, S. A. Benner.
CATTARAUGUS CUTLERY COMPANY, Little Valley, N. Y.: Tint Champlin.
CHALLENGE CUTLERY CORPORATION, New York: W. M. Taussig, E. T. Smythe, Felix B. Lippman.

the important questions which may come before you for consideration.

THE POSTAL QUESTION.

When in the office of a great factory or commercial house a little 2-cent stamp is placed upon a letter it is a matter of little thought, from the fact that it is but 2 cents. When, however, it appears that the aggregate during the year runs into hundreds and thousands of dollars, and that letter postage is the chief maintenance of the great Postal Department and contributes largely to the payment of freight on parcels and other cheap rate matter, we are inclined to ask, In what interests is this cheap transportation conducted? The subject is one which at the present time appeals especially to merchants by reason of proposed legislation. Two years ago at Atlantic City the plan to increase the scope of parcels post delivery by lowering the rates on merchandise was presented at length by a special advocate of that idea. Many of our members expressed themselves as not being directly interested in the subject. Nevertheless, upon learning the disastrous effects upon the regular merchant trade which would result from the proposed legislation you with practical unanimity adopted resolutions in opposition thereto. These resolutions were transmitted to the proper authorities.

AN ALLURING SCHEME.

A few months ago there was widely issued from Brooklyn, N. Y., over the signature of Richard W. Bainbridge, an official of the Manufacturers' Association of New York, an alluring scheme the ostensible purpose of which is the reduction of letter postage to 1 cent. The ultimate purpose, however, was, as admitted, to increase the scope of parcels post delivery. The plan proposes that the increased burden be thrown upon the rates on periodicals, which would still result in an increased postal deficit. The much abused "endless chain" system of correspondence was introduced to give increased popularity and indorsement to the plan without cost to the promoters. Copies of these communications were sent to our members by our secretary.

ANOTHER EFFORT TO FACILITATE PARCELS POST DELIVERY

resulted in an order from the postal department instructing that all rural routes be numbered and all boxes in each route should also be numbered, thus enabling certain classes of advertisers to reach every rural box in the United States without the expense and inconvenience of securing the names of the persons addressed. *The Iron Age* of New York took the initiative and with much patience secured information which, when laid before the postal department, resulted in a temporary suspension of the order. The entire trade press of the country, and many merchants, have used their influence along the same line. The order was amended so that the names and numbers should both appear on the boxes. This intensified the objection. The fact offered by some manufacturers, that a liberal parcels post would prove a convenience to them in mailing samples is hardly an offset to the havoc which befalls the retailers through the shipments made from catalogue houses direct to consumers.

CATALOGUE HOUSES.

This naturally leads to the subject of catalogue house competition, which has become one of absorbing interest to the trade at large in many branches, to manufacturers as well as to the merchants. The present position of the manufacturers on this question is very similar to that of an old colored man described by an ex-governor of Virginia.

The negro while riding a mule through a dense forest at night was overtaken by a violent thunderstorm. Being unable to make any headway through the thick darkness except by the aid of the fitful flashes of lightning which occasionally revealed his surroundings, and becoming greatly alarmed by the loud and terrible peals of thunder which reverberated over his head, he at last appealed to the Throne of Grace in this fashion: "Oh, Lawd, if it's jest the same to You, I'd rather have a little less noise and a little mo' light!" We have heard the continued thunders, peal after peal, but we need a little more light.

WE NEED LIGHT

on how it is hoped to curb the catalogue houses except by competition, so long as some merchants and some manufacturers furnish them all the goods that they need, to the extent of $75,000,000 per annum, and so long also as these houses arrange to manufacture (as they do now) such goods as they cannot easily obtain from other sources. This increase in the manufacturing branch of their business cannot be viewed either by you or the jobbers with complacency. In the meantime the trumpets of rams' horns are being blown around the walls of Jericho, which refuse to fall. The retail merchants are encouraged to believe that you manufacturers are the evil spirits that are supporting these houses, yet it appears that few of this membership have any relations with them. Several articles published in journals giving color to this idea have appeared and some communications from both jobbers' associations strengthen this belief. An official communication was delivered to our secretary after your adjournment at Hot Springs and has therefore probably not come to your notice heretofore. It is as follows:

June 8, 1905.

To the Members of the American Hardware Manufacturers' Association:

The following resolutions have this day been adopted by the Southern Hardware Jobbers' Association, and are respectfully submitted for your consideration:

DISTRIBUTION OF GOODS BY THE MANUFACTURERS.

Resolved, That this association record its unqualified disapproval of any manufacturer marketing any part of his product through any other channel than the legitimate Hardware jobber, and when this policy is disregarded by any manufacturer, the offending party shall be reported to the secretary, who shall take the matter up through personal correspondence and endeavor to cause the manufacturer to discontinue this practice; and we further most earnestly protest against the manufacturers selling to the small dealers at all, as by doing so the small dealers frequently purchase more goods than they can legitimately handle and therefore dispose of the surplus at cost, to the damage of the jobbers for hundreds of miles around.

This communication was acknowledged by our secretary, who quoted a resolution adopted by you at Atlantic City, which resolution was quite in harmony with the request of the jobbers.

IT MUST BE CONCEDED

that the inroads of the catalogue houses are certainly a matter of serious concern to all retailers and jobbers and are of equal concern to you. Strong and experienced merchants are pushing the campaign against these houses and, as we must believe, conscientiously and vigorously in the interests of the merchant trade. So far, however, as is indicated by the information which has come to our notice, the only remedy proposed by the merchants' organizations is that all manufacturers and jobbers shall discontinue the sale of any goods to these houses. The penalty for any disregard of this protest will be the reporting of the offender to their secretary, after which the defendant will be given a hearing. If found guilty the punishment will be at the discretion of the court. You naturally ask, Does this place the manufacturer in a dignified position? Is it a courteous declaration, and can it possibly prove an adequate remedy? Even though it may seem perfect in theory is it possible to induce or compel all jobbers and manufacturers to co-operate.

IF THE RESPONSE IS NOT ABSOLUTELY UNANIMOUS

will it succeed? Have we evidence that the jobbers are inclined to make any sacrifices or concessions whatever looking to this end, and which are in any sense equal to those sacrifices which they ask you to assume when they urge you to refuse all trade with those great houses, at the same time also to avoid retailers; also those who sell groceries and consumers, which request is responded to by the greater number of our members?

THERE IS ANOTHER PHASE OF THE CASE

which may be fairly considered. Let us assume (which we can safely do) that no catalogue house can buy from a manufacturer any article at any less price than you would sell a similar article to a regular jobber. Now, taking into account the cost of catalogues, the expense of distributing them to millions of consumers and the added

cost of the delivery of single packages by their methods, are they able to place this article directly into the hands of the consumer at a less price than the retailers will supply a similar article, which they obtain through the ordinary channels of trade, the jobbers? It would appear that they are able. If they are, both we and the jobbers certainly have the catalogue house question with which to reckon. The jobbers and retailers cannot, either with fairness or success, throw the burden of the fight entirely upon the manufacturers.

For the purpose of ascertaining

IF THE MERCHANTS ARE REALLY MAKING SACRIFICES

which would appear sufficient to meet the catalogue house competition, we have taken occasion to purchase a few very staple articles of different kinds from reliable retail stores near Chicago, the center of disturbance. The different manufacturers who produce the particular articles referred to state that the manufacturer's profit on them is very close—not to exceed 10 per cent.—and this statement we have endeavored to verify. On one kind of article the retail price paid was $1.10 each. Tracing this identical article back to the manufacturer who produced it it was found that the cost to the jobber was not to exceed $4 per dozen, thus showing a net profit of more than 200 per cent. to be divided between the jobber and the retailer, with enough margin remaining to pay the freight to the jobber. We discovered similar results on other lines of goods, each showing equally large margins for some one. This kind of competition will certainly not interest a country buyer who has access to catalogue house prices. While many of us have been strictly and conscientiously refusing to sell this and other similar trade, the catalogue houses have on a large scale

ENTERED INTO THE MANUFACTURE OF GOODS

which they find it difficult otherwise to obtain. At the same time some jobbers have also entered the field of manufacture, both directly and indirectly. While the manufacturers have been pilloried in these rigid stocks more than one of the large jobbers, as has been generally known, has during the past year held extensive trade relations with these catalogue houses and you are therefore again between His Satanic Majesty and the dark and deep blue sea.

The subject is of commanding importance to us. We believe that the catalogue houses are a menace to the retail stores. We recognize that the retail stores make the country towns become centers of civilization. For the interest of rural communities, if for no other reason, we would foster them.

WE ARE STRIVING,

and will continue, to assist the jobbers who are our customers, in trying to solve this problem, but they apparently fail to recognize the fact that their only remedy means that the various manufacturers shall turn their backs on an annual business of more than $60,000,000, which is transacted by two of these houses. Most of us will continue to make the sacrifice so long as there is any prospect of accomplishing results, but the present crusade against those houses along the lines proposed is sure to fail.

In the line of campaign, which is that the manufacturers as a whole shall be drafted and

PUT IN THE FRONT LINE IN THE CONFLICT

for the protection of the so called regular trade, and suffer the main shock of the almost hopeless contest, should you not have some share in the honor which is usually accorded to worthy allies, or are you content to remain down in the galleys tugging at the oars while the commanders sit on the deck waving their flags and receiving the plaudits of their admiring constituents?

It is fair to state, however, that the Merchants' Committee certainly have conducted an honorable and open campaign. There has been no subterfuge or deception, for they have stated with apparent frankness and sincerity just what they want—an example worthy of the emulation of this association. It deserves in return our highest respect, and if the interests of manufacturers had been more fully considered would doubtless have received almost universal co-operation.

SPECIAL BRANDS.

The statement has recently been published that you have raised the issue of Jobbers' Special Brands for the purpose of evading the catalogue house question. It would seem that this impression is an error, for the reason, as I am informed, that the subject of Special Brands was the main question presented at the first meeting of this association, four years ago, and at a time when the jobbers as a whole were nursing the infant which has now become a giant beyond their control. This subject has annually since that meeting been presented by various members for your consideration. This, however, seems immaterial. The fact remains that you have made it a question of to-day and have imposed upon me by virtue of my office the duty of bringing it before this convention. This seems to necessitate a brief statement of the present status of the question.

YOU WILL REMEMBER

that at the convention at Hot Springs there was read a report upon this subject which was previously prepared by a committee of nineteen members selected by your instructions from the various industries here represented. The report was unanimously adopted by a rising vote without one single dissent and at the largest executive meeting ever held by this association. The official copy was transmitted to the jobbers then in session, with the request that they give it their kindly consideration. Their reply, which, by the way, never reached us except through the press, clearly indicated that the report was not understood or received in the spirit in which it was presented. This is not strange, because the jobbers had but little time for its consideration, and this time was apparently devoted to some personal matters and to the form in which the report was framed, rather than to the real question at issue. In view of your unanimous and deliberate indorsement of the report it must be understood that you then believed that all the statements contained therein were true. It was your expressed opinion that in view of the

SUPREME IMPORTANCE OF THE SUBJECT

as it bears upon many of you as manufacturers it was expressed in language of moderation and in a spirit of thorough friendliness. The evident plan of the report was to set forth briefly and as kindly as possible some effects of a practice which as much from the policy of the manufacturers as through the acts of the jobbers, has become so nearly universal as to cause you embarrassment, which embarrassment is intensified by the urgent and, under other conditions possibly the reasonable, request that you confine your sales exclusively to jobbers. So far as can be discovered in your report the entire discontinuance of the use of Special Brands by jobbers was not suggested or probably not expected. You expressed no objections concerning the use of jobbers' names on any articles. The issue presented was that the jobbers generally demand the

ABSOLUTE ELIMINATION

of every track, trace or resemblance of the manufacturer's brand, name or place of business upon the goods furnished, and this under existing conditions you regarded as unfair. It was admitted that a few goods bearing factory brands were sold in cases where the customer demanded them. The concluding paragraphs of the report embrace all that you as an association have asked to the present time. The request is as follows:

We therefore ask the Southern Hardware jobbers, now in session, to consider the question whether or not the sale of standard factory brands, in preference to the enormous multiplicity of irregular private brands, would not also be to their advantage. We invite this consideration with the assurance that we certainly can and do furnish goods bearing our standard brands fully equal in quality and certainly at as low prices as those at which we would furnish similar goods under special brands.

Some doubtless have adopted the use of private brands in view of the possibility that if an article bearing the manufacturer's brand proves to be highly satisfactory and profitable to the retailer and consumer, such persons may seek to deal

directly with the producer. The present policy of manufacturers should certainly remove this fear if it exists, but we believe that the use of jobbers' private brands is inclined more than anything else to drive the manufacturers to a more direct distribution of their goods.

Such merchants as will assist in the mitigation of this evil by handling regular manufacturers' brands will receive our most cordial support and co-operation.

This request certainly appears to be courteous, dignified and respectful, and fairly opens the gates for a conference if such should be mutually agreeable.

One paragraph in the report, which to a callous manufacturer seems to be quite innocent, has evoked much criticism, but, as stated in their reply, points to the jobbers as past masters in the art of double dealing. The objectionable paragraph is as follows:

"Many jobbers often buy a second grade of goods and sell them under a private brand as their first quality."

IF THIS STATEMENT BE UNTRUE OR MISLEADING

you should correct it. It was not stated that all jobbers do this. In fact, if they did, it still is not questioned that any jobber or manufacturer certainly has an absolute legal and moral right to grade his wares as he sees proper. The occasion for the statement in your committee's report, as you doubtless construed it, was simply to show the effect of this practice on the sale of regular brands and not to point a moral—the question was private brands and not men.

The gentleman who, it is said, prepared the main reply for the Southern jobbers is believed to be the soul of honor, and yet if the best goods which he sells under his own brands are at all times the best that are made he is certainly a paragon and deserves to be enthroned on the seats of the saints.

If the paragraph should be addressed to some persons in another connection as indicating their ability to obtain good prices for their goods it might be received as a high compliment, and some salesmen on the road would receive an immediate advance in salary if they would develop the ability to sell cheap goods at a high price. On the other hand, it would not be strange if there were buyers who use all the arts of diplomacy to secure their goods at a less price than their competitors.

IT IS AN AXIOM WITH MERCHANTS

that goods must be bought well and sold well; but why cloud the main issue by magnifying incidental statements far beyond their importance and manifest intent, so long as it is admitted that many merchants and manufacturers rely upon the regular and uniform excellence of their goods for success?

The head of a certain very large jobbing house which has been exceedingly careful with the quality of its private brands (and there are others of the same type), apparently never imagining that his house was in the minds of your committee, has strongly commended your statement, and asserts that the common practice of shifting jobbers' brands and grades is unfair and misleading and that many of them for the good of the trade should be eliminated.

The extent to which manufacturers are asked to meet the demand for private brands is fairly illustrated in the

POCKET CUTLERY INDUSTRY,

wherein not only is the jobber's private brand required, but in some cases the retailer's name is etched upon the blade in addition to the jobber's name. A Pocket Knife of this type was recently purchased from a retail store in a Michigan town having a total population of 200 persons. It is a general store, dealing in feed, flour and general supplies.

If the manufacturer were given a fair recompense for the enormous detail accompanying such work there might be some justification for this practice. As the main speaker at the jobbers' session this morning presented many figures showing the small profit to the retailer when competing with catalogue houses,

IT MAY NOT BE AMISS TO STATE

that between the retail price paid for the Knife just referred to, which was 75 cents, and the price at which manufacturers here present regularly furnish the same kind of Knife to any reputable jobber there is a profit of fully 150 per cent.

This is not one of the cases previously referred to in this report. If the speaker of the morning instead of showing only the profit between the jobber and the retailer in a few instances had also shown to the manufacturers what the jobber's profit really was the burden of responsibility might have been more definitely fixed.

Other jobbers have stated that if you will protect them in a profit on your staple goods they would prefer them to irregular brands. This plan deserves your consideration.

In your report you expressed the hope that some jobbers may fairly open the way for your brands to the consumers, and to such you promise your cordial support and co-operation, and you advise them that

IF PRESENT CONDITIONS CONTINUE

it will be impossible long to restrain many of the manufacturers from seeking such avenues as will carry their regular goods to the consumers.

Putting aside the features of your report which it must be regretted have been construed differently from what was intended, the main points of the question are clearly before us and are as follows:

The jobbers are pressing more strongly than ever that all of your products shall pass exclusively through their hands.

They will not to any considerable extent permit your bands or labels to appear on their goods.

They will buy and sell the goods of manufacturers who do sell through other channels.

They will manufacture as opportunities are afforded, as they certainly have a right to do.

They ask you on their behalf to fight the catalogue houses, which to-day are off and far away beyond any possible control of either you or the merchants so long as present methods are pursued. Many of us have conscientiously worked with them on these lines, but the handwriting is on the wall.

HAVE YOU ANY ASSURANCE OF RECIPROCITY?

Does the reply of the Southern jobbers indicate any inclination to assist us in our dilemma?

While it is not the purpose of the factories with which the president of this association is connected to change their policy in marketing their goods, it is absolutely certain that unless there can be some friendly compromise of these questions in the near future there will with many factories be a realignment of forces and a readjustment of methods in many lines. Some manufacturers will rush into the arms of the catalogue and department houses, fearing it will soon be too late. Others will reach for direct trade through other methods. These words being the expression of honest convictions ought to be received even by a jobber in the friendly spirit in which they are given.

IT IS NO TIME FOR DISSIMULATION OR TRIMMING,

and a sensible merchant will respect a frank and honest statement in a higher degree than he will a qualified statement known to be somewhat different from views expressed on this floor.

If these sentiments are not fully indorsed and approved by you this report will not be given to the press. I am simply striving to summarize your views as best I can and as your servant.

THERE IS ONE MATTER

with which many of you may not be entirely familiar. In the summer a circular and prospectus prepared by some person not a member of the association was mailed to twenty of our members. It was so sent without the knowledge or authority of your board or of the officers. Some person from motives unknown to your board appears to have placed copies of the document in the hands of some merchants. The standard of integrity of the Hardware jobbers of this country is so favorably established that we know with certainty what estimate they would place on any person who, to put himself in their favor, would deliberately seek to embarrass those whose confidence he has temporarily secured.

PAGINATION

INCORRECT

HARMONY NECESSARY.

These questions now before us, and which seem to be of such commanding importance to the manufacturers at the present time and perhaps of equal interest also to the merchant trade and to the consumers, seem to emphasize the idea set forth in the introduction to this paper (and doubtless at too great length), that the subject ought to be treated if possible in harmony with the merchants.

The jobbers have asked you to discuss with them the catalogue house question. They have expressed themselves on the subject of private brands. On all subjects except the last mentioned you have apparently come fairly into accord with them. The discussions have resulted in placing before both bodies the two sides of the question and in the spirit which might be expected.

ONE VALUE OF THESE JOINT CONVENTIONS

is to work toward a mutuality of interests. The Hardware jobbers of this country I hold among my best and most valued personal friends and you surely share this sentiment. Like other honorable business men they would abhor deception, and they are bound at least to respect those who frankly and honestly, but in a kind spirit, will state their views. You need them and they need you. Be fair.

If a committee from the bodies would undertake to reach some solution of this matter which would prevent radical measures on the part of our members it might prove of value.

With this convention, the duties with which you intrusted me will be assumed by another. This seems the most fitting opportunity for me to express to you my sincere thanks not only for the honor which you have conferred upon me for the second time, but for the uniform kindness and forbearance which has been manifested, and which I trust may be bestowed upon my successor.

UNBOUNDED THANKS

are due each member of your official boards. Their constant intelligent and sacrificing efforts, unknown to most of you, have been the power which has controlled the organization. Although some of them have at times from necessity been brought into some prominence, yet each of them has been averse to those duties which would bring him into the public eye.

This has led to a readjustment of your committees and you will doubtless observe that there is now very little duplication of names.

The spirit of your present board is that there shall be rotation in office and that each member shall come to the front. Let every man keep behind this association and push it along, and above all while you will be fair and honorable in your dealings with merchants you must be loyal to your associates here.

THE TREATMENT OF THE CATALOGUE HOUSE PROBLEM.

BY WILLIAM M. PRATT.

The following address was delivered before the American Hardware Manufacturers' Association, but was prepared with a view to presenting it at the joint meeting on Wednesday when the subject was under consideration. The time of the session, however, was so fully occupied that there was no opportunity to present it on that occasion:

The growing tendency toward organization necessarily carries with it a heavy responsibility which must rest upon the shoulders of those who direct and administer the affairs. This concentration of power must be handled wisely and well if the results are to be beneficial—yes, even if serious consequences are to be avoided.

MANUFACTURERS BETWEEN TWO FIRES.

The manufacturers of to-day and particularly those engaged in making Hardware and its kindred products are not in an enviable position; they are standing between two fires as it were—they find organized labor on one hand dictating to them how they shall run their plants and an organized selling power upon the other making similar pretenses as regards their methods of distribution.

The honorable gentlemen comprising the Catalogue House Committee, from motives purely philanthropic, are

ENDEAVORING TO EMANCIPATE

the great rank and file of Hardware trade from the slavery of catalogue houseism. They believe (certainly this is the impression conveyed by their statements) that the catalogue houses must be destroyed and are using every means in their power to accomplish this result.

They have endeavored by persuasion and argument to induce manufacturers to refuse to sell them goods, hoping to either force the catalogue houses to become manufacturers themselves or go out of business. Having exhausted the gentler methods, I understand that it is now their intention to adopt

A MORE STRENUOUS POLICY

that they will push forward with great vigor and through concerted action will attempt to induce the rank and file of the Hardware trade in this country to favor in their purchases those manufacturers who have declined to sell the catalogue house trade.

Now there is little in the phraseology of this platform that could be criticised, yet its hidden meaning is not hard to read. I should hate to think that any one of the gentlemen who are prominent in this movement would favor either directly or indirectly a

CAMPAIGN OF BOYCOTT

yet this impression is sure to go out if such a programme is adopted. It would be just as well, and I believe far better, to come out and call a spade a spade, fight it out in the open and let the outcome of the whole matter be the survival of the fittest. The adoption of that policy may be with thoughts of revenge; it cannot be with the hope of victory.

The company which I represent has taken no uncertain stand upon this question; we do not believe that it is wise or for our best interests to decline to sell the catalogue house trade, and we propose to continue to sell them; and while we are willing to use our good offices with the catalogue houses in an endeavor to have

FAIR AND REASONABLE PRICES

maintained, not having seen fit to attempt to regulate the retail selling prices upon the various articles which we manufacture, we do not consider it consistent that we should insist upon the catalogue houses maintaining fixed prices when we know that oftentimes retail merchants themselves are selling our goods for less money.

Now we are willing to take all the blame upon our own shoulders; the goods will go in a straight line from our factory to the warehouse of our catalogue house customer. It will not be necessary for any jobber, be he a member of the national association or not, to incur the enmity of his fellow jobbers by becoming an underground passage through which the catalogue house can be supplied with our goods.

HAVING MADE OUR PLATFORM

we propose to stand on it, and if we are not able to succeed we will accept with good grace the other alternative, or in the words of Kipling, as taken from the "Young British Soldier," slightly changed: "When the jobbers come out to cut up our remains we will roll on our musket and blow out our brains and die like a soldier." We believe that the

CONSUMING PUBLIC HAS SOME RIGHTS

in this matter; that to them the catalogue house is sometimes a convenience, sometimes an economy and sometimes both. They have purchased our goods from catalogue houses for many years, until this avenue of distribution has become a sizable one and we decline to close it.

Gentlemen, with all due respect to your good intentions, you are on the wrong track; you are endeavoring to destroy when you should create; you are looking for moats in the eyes of others and you have overlooked

pail and the crease in the mop is held against the movable roller. The right foot is pressed on the plate on the right side of the tub clear down to the floor, so that the movable roller is in line with the other roller at the same time the mop is drawn through the rolls. To throw the rollers together on the mop it is explained that only a little pressure with the right foot is necessary, as the pressure that wrings the mop is from a spring, which is strong, sure and even, and not from the foot. This remains on the plate simply to steady the tub while withdrawing the mop. It is remarked that the wringer is simple enough to appeal to women.

The Grimm Sap Spout and Cover.

The accompanying illustrations show a sap spout with bucket hook and sap pail cover used in connection with the spout offered by G. H. Grimm & Co., Rutland, Vt. Among the advantages claimed for the spout are the following: That the spout will increase the flow of sap because there is no contact with the sap producing fibers or new growth of bark; that the inlet for the spout

Fig. 1.—The Grimm Sap Spout.

being at the bottom of the spout drains the sap from the bore and excludes the air, preventing sour sap and the formation of ice and obviating leakage caused by freezing; that the spout is removed from the bore by turning without tearing or bruising the bark, thus allowing the wound to heal in one season; that rossing or removing the bark is unnecessary; that the spout, being of the proper taper to fit several different bores, permits practical reaming; that as it is round, having no shoulders, spears or rough edges, driving it into the bark does not bruise the sap wood and new growth of bark to cause decay; that the spout is coated with material that will

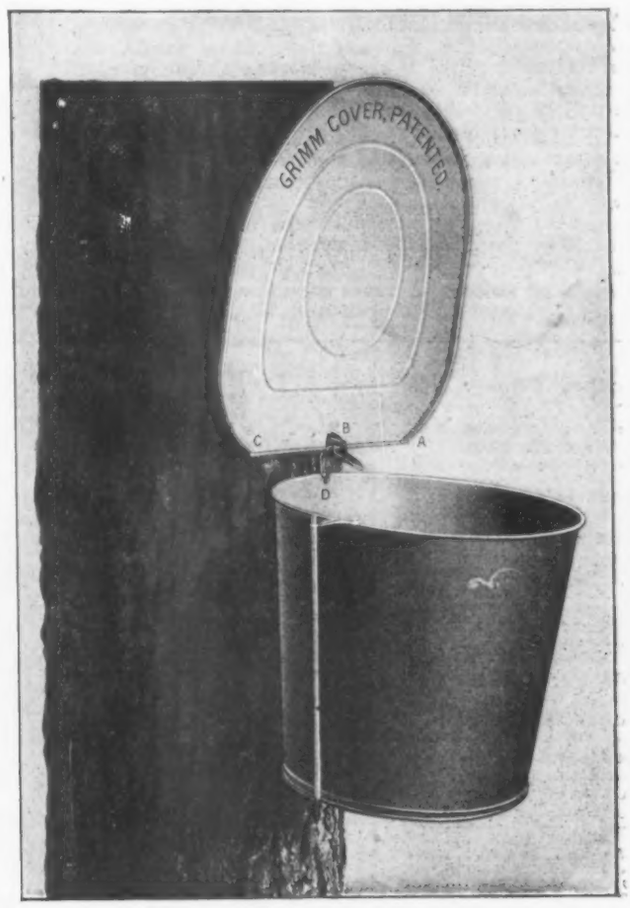

Fig. 2.—The Grimm Sap Pail Cover.

not rust and that as it is smooth it is easily cleaned and is not poisonous to the sap and wood. The cover, it is explained, excludes all dirt, rain and snow from the bucket, preventing waste and producing a better quality of product.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal
Linseed, City, raw	42 @43
Linseed, City, Boiled	43 @44
Linseed, State and West'n, raw	40 @..
Linseed, raw Calcutta seed	@62
Lard, Extra Prime, Winter	60 @61
Lard, Extra No. 1	43 @47
Lard, No. 1	37 @42
Cotton-seed, Crude, f.o.b. mills	22 @23
Cotton-seed, Summer Yellow, Prime	29 @29½
Cotton-seed, Summer Yellow, off grades	@..
Sperm, Crude	50 @52
Sperm, Natural Spring	@..
Sperm, Bleached Spring	@..
Sperm, Natural Winter	60 @62
Sperm, Bleached Winter	63 @65
Tallow, Prime	51 @53
Whale, Crude	@..
Whale, Natural Winter	42 @44
Whale, Bleached Winter	44 @46
Menhaden, Brown, Strained	27 @28
Menhaden, Light, Strained	28 @29
Menhaden, Bleached, Winter	30 @31
Menhaden, Ex.-Bld., Winter	31 @32
Menhaden, Southern	16 @16½
Cocoanut, Ceylon ℔ lb	6½@ 6¾
Cocoanut, Cochin ℔ lb	8 @ 8½
Cod, Domestic, Prime	34 @35
Cod, Newfoundland	38½@40
Red, Elaine	29 @31
Red, Saponified ℔ lb	4¼@ 4¾
Olive, Italian, bbls	60 @67
Neatsfoot, prime	49 @50
Palm, Logos ℔ lb	6¼@ 6½

Mineral Oils—

Black, 29 gravity, 25@30 cold test ℔ gal.	10¼@11½
Black, 29 gravity, 15 cold test	11½@12½
Black, Summer	10¼@11¼
Cylinder, light filtered	18 @19
Cylinder, dark filtered	16 @17
Paraffine, 903-907 gravity	12½@13
Paraffine, 903 gravity	11½@12
Paraffine, 883 gravity	9¼@ 9½
Paraffine, Red	11½@13

In small lots ½¢ advance.

Miscellaneous—

Barytes, White, Foreign ℔ ton	$17.50@19.00
Barytes, Amer. floated ℔ ton	18.00@19.00
Barytes, off color, No. 2 ℔ ton	13.50@15.00
Chalk, in bulk ℔ ton	3.00@ 3.25
Chalk, in bbls ℔ 100 lb	.... @ .35
China Clay, English ℔ ton	11.00@17.00
Cobalt, Oxide ℔ 100 lb	2.50@ 2.60
Whiting, Common ℔ 100 lb	.43@ .46
Whiting, Gilders ℔ 100 lb	.50@ .55
Whiting, Ex. Gilders ℔ 100 lb	.55@ .60

Putty, Commercial—℔ 100 lb

In bladders	$1.65 @1.85
In bbls. or tubs	1.15 @1.35
In 1 lb to 5 lb cans	2.60 @2.90
In 12½ to 50 lb cans	1.45 @1.85

Spirits Turpentine—℔ gal.

In Oil bbls	69½@70
In machine bbls	70 @70½

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @ 9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	9 @12
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached Commercial	36 @37
Bone Dried	46 @47
Button	36 @45
Diamond I	@65
Fine Orange	45 @47
A. C. Garnet	@45
D. C.	60 @..
Octagon B	@52
T. N.	40 @41
V. S. O.	68 @..

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	10 @15
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	8½@ 9½
Lead, American white, in Oil:	
Lots of 500 lb or over	@ 7
Lots less than 500 lb	@ 7½
In Barrels	@ 7
Lead, White, in oil, 25 lb tin pails, add to keg price	@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price	@ 1
Lead, White, in oil, 1 to 5 lb ass'ted tins, add to keg price	@ 1½

Lead, American, Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	℔ lb
Lead, White, Dry, in bbls	@ 6½
Zinc, American, dry	4⅝@ 4¾

Zinc, French:

Paris, Red Seal, dry	9½
Paris, Green Seal, dry	10½
Antwerp, Red Seal, dry	8½
Antwerp, Green Seal, dry	10

Zinc, V. M. French, in Poppy Oil:

Green Seal:	
Lots of 1 ton and over	12⅞@13⅜
Lots of less than 1 ton	13⅛@13⅝

Zinc, V. M. French, in Poppy Oil:

Red Seal:	
Lots of 1 ton and over	11⅝@12⅛
Lots of less than 1 ton	11⅞@12⅜

Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black, Drop, American	4 @ 6
Black, Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@ 6
Blue, Celestial	4 @ 6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	4½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.50@3.60
Green, Chrome, ordinary	3½@ 6
Green, Chrome, pure	17 @25

Lead, Red, bbls., ½ bbls. and kegs:

Lots 500 lb or over	@ 7
Lots less than 500 lb	@ 7½
Litharge, American, bbls	@ 7
Ocher, American ℔ ton	$8.50@16.00
Ocher, American Golden	2½@ 3½
Ocher, French	1¼@ 2½
Ocher, Foreign Golden	3 @ 4
Orange Mineral, English	10 @12
Orange Mineral, French	10¾@12¼
Orange, Mineral, German	8¼@10¼
Orange Mineral, American	8½@ 8¾
Red, Indian, English	4½@ 8½
Red, Indian, American	3 @ 3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
Red Venetian, English. 100 lb	$1.15@1.75
Sienna, Italian, Burnt and Powdered	3 @ 9½
Sienna, Ital., Raw, Powd	3 @ 6½
Sienna, American, Raw	1¼@ 2
Sienna, American, Burnt and Powdered	1¼@ 2
Talc, French ℔ ton	$15.00@30.00
Talc, American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	90 @1.00
Terra Alba, English ℔ 100 lb	90 @1.00
Terra Alba, American, ℔ 100 lb., No. 1	60 @70
Terra Alba, American, ℔ 100 lb., No. 2	45 @50
Umber, Turk. But. & Pow	2½@ 3¼
Umber, Turkey, Raw & Pow	2½@ 3½
Umber, Burnt, Amer	1¼@ 2
Umber, Raw, Amer	1¼@ 2
Yellow, Chrome	11 @14
Vermilion, American Lead	10 @25
Vermilion, Quicksilver, bulk	@65
Vermilion, Quicksilver, bags	@60
Vermilion, English, Import	75 @80
Vermilion, Chinese	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Domestic, ℔ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition— See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....℔ lb 6¾@7 ¢
Hay-Budden, Wrought.....9@9¼ ¢
Horseshoe brand, Wrought.....9@9¼ ¢
Trenton .....℔ lb 9@9¼ ¢

Imported—
Peter Wright & Sons.....℔ lb 10⅛ ¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....15&10%

Apple Parers— See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co.....33⅓%

Augers and Bits—
Com. Double Spur.....75@75&5%
Jennings' Patn., reg. finish.....50&10@60%
Black Lip or Blued.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&10&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist....60&10%
Wright's Jennings' Bits.....50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ℔ doz. $36; No. 2, $48.....65%
Ford's, Clark's Pattern.....60&5%
C. E. Jennings & Co., Steer's Pat..25%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—
Ship Augers.....45&5@60%
Ford's .....33⅓@5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....35&5%
Ohio Tool Co.'s.....40%
Snell's 40%

Awl Hafts— See *Hafts, Awl.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered...gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00
Hurwood 40%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights:
First Quality.....$6.75
Second Quality.....$6.25
Double Bit, base weights:
First Quality.....$9.00
Second Quality.....$8.50

Axle Grease—
See *Grease, Axle*

Axles— *Iron or Steel*
Concord, Loose Collar...4¼@4¾¢
Concord, Solid Collar...4¾@5¼¢
No. 1 Common, Loose...3¼@3¾¢
No. 1½ Com., New Style3¾@4¼¢
No. 2 Solid Collar.....4@4½¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 23...75&10@75&10&5%

Boxes, Axle—
Common and Concord, not turned lb..4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent.....lb. 8½@9¢

Bait— Fishing—
Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances— Sash—
Caldwell new list.....50%
Pullman .....50&10@60%

Spring—
Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—See *Wire, Barb.*

Bars— Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 2.50@2.75¢

Towel -
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beams, Scale—
Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ℔ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..℔ doz. $1.75
Western W. G. Co.:
No. 1 Electric.....℔ gro. $7.80
No. 2 Buffalo.....℔ gro. $9.00
No. 3 Perfection Dust.....℔ gro. $8.00

Egg—
Holt-Lyon Co.:
Holt, No. A, Japanned....℔ doz. $1.20
Holt, No. 1, Tinned.....℔ doz. $1.50
Holt, No. B, Japanned....℔ doz. $2.00
Holt, No. 2, Tinned.....℔ doz. $2.25
Lyon, No. 2, Japanned....℔ doz. $1.25
Lyon, No. 3, Japanned....℔ doz. $1.50
Taplin Mfg. Co.: ℔ gro.
No. 60 Improved Dover.....$6.00
No. 75 Improved Dover.....$6.50
No. 100 Improved Dover.....$7.00
No. 102 Improved Dover, Tin'd..$8.50
No. 150 Improved Dover, Hotel..$15.00
No. 152 Imp'd Dover, Hotel, T'd.$17.00
No. 200 Imp'd Dover Tumbler....$8.50
No. 202 Imp'd Dover Tumbler, T'd.$9.50
No. 300 Imp'd Dover Mammoth, ℔ doz. $25.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (S. S. & Co.).℔ gro. net, $6.00

Bellows—
Blacksmith, Standard List..
60&10@70&10%

Hand—
Molders—
Net Prices.

	6	7	8	9	10
Inch..					
Doz..	$4.75	5.70	6.65	7.60	8.85

	9	10	11	12	14
Inch..					
Doz..	$8.00	9.00	10.50	12.50	14.50

Bells— Cow—
Ordinary goods...75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey .....75&10%
Texas Star.....50%

Door—
Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's....60&10&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....55%

Hand—
Hand Bells, Polished, Brass.. 60&5@60&10%
White Metal.....60%
Nickel Plated....50&10@50&10&5%
Swiss .....60@60&7½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—
Farm Bells.....lb. 2¼¢
Steel Alloy Church and School 50&10&5@60&5%
American Tube & Stamping Co. Gongs 75%
Table Call Bells.....50@50&10%

Belting— Leather—
Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 70%
Light Standard.....70&5%
Cut Leather Lacing.....60%
Leather Lacing Sides, per sq. ft. 22¢

Rubber—
Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Detroit Perfected Tire Bender.....40%
Green River Tire Benders and Upsetters 20%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.

Bicycle Goods—
John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 60%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks— Tackle—
Common Wooden....70&10@75%
Hartz St. Tackle Blocks.....50@50&5%
Hollow Steel Blocks, with Ford's Patent Sheaves.....50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—
Zinc, Crystal, &c...30&10@40&10%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co.....33⅓%

Bolts—
Carriage, Machine, &c.—
Common Carriage (cut thread): ⅝ x 6 and smaller.....75@—%
Larger and Longer..65&5@—%
Phila. Eagle $3.00 list May 24, '99 80%
Bolt Ends, list Feb. 14, '95.... 65&10@—%
Machine, ⅜ x 4 and smaller 75@—%
Machine, larger and longer.. 65&10@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knob:

	3	4	5	6	8
Inch.....					
Per doz.	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

	6	8	10
Inch.....			
Per doz.....	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:

	6	8	10
Inch.....			
Per doz.....	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd., Brass Knobs:

	6	8	10
Inch.....			
Per doz.....	$0.75	.35	1.25

Wrt Barrel Japd.....80@80&10%
Wrt " Bronzed....50@50&10%
Wrt. Spring...70&10@70&10&10%
Wrt. Shutter.....50&5@50&10&5%
Wrt. Square Neck.....75@75&10%
Wrt Square 66⅔&10@66⅔&10&10%
Ives' Patent Door.....60%

Plow and Stove—
Plow .....65&10&10@70%
Stove .....87½&10@—

Tire—
Common .....80&10&5%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 28, '99.....80%
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '84....80%
Eagle Phila., list Oct. 16, '84...82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '84.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—
Borers Tap, Ring, with Handle:

	1¼	1½	1¾	2
Inch.....				
Per doz...	$4.80	5.60	6.40	8.00
Inch	2¼	2½		
Per doz.....	$6.65	11.50		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25%

Boxes, Mitre—
C. E. Jennings & Co.....30%
Langdon .....15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.:
Nos. 240 to 460.....30%
Nos. 50 and 60.....35%

Braces—
Common Ball, American..$1.25@1.30
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 .....60%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley 35%
Victor 45%

Brackets—
Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf.....75%
Stowell's Sink.....50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....75@75&10%

Buckets, Galvanized—
Price per dozen.

	Quart.	10	12	14
Water, Regular		1.40	1.70	1.90
Water, Heavy		3.40	3.70	3.80
Fire, Rd. Bottom		2.30	2.55	2.95
Well		2.55	2.87	3.15

Bucks, Saw—
Hoosier.....℔ gro. $36.00

Bull Rings—See *Rings, Bull*

Butts— Brass—
Wrought, list Sept., '96....20&5%
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow...40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5
Parliament Butts.....70@70&5

Wrought Steel—
Table and Back Flaps...75%
Narrow and Broad.....75%
Inside Blind.....75%
Loose Pin.....75%
Loose Pin, Jap'd.....70&10%
Loose Pin, Ball and Steeple Tip 85%
Japanned Ball Tip Butts... 70&10%
Bronzed, Wrt., Nar. and Inside Blind Butts....55&10%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....60&10%

Ex. 10&10&10@10&10&10&10&5%

Hendryx Bronze:
700, 800 series....40&10%
Hendryx Enameled....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong....per lb. 4¢@4¼¢
Sharp, 1 prong...per lb., 4½@4¾¢
Burke's Blunt....4@4¼¢
Burke's Sharp....4½@4¾¢
Gautier, Blunt....4@4¼¢
Gautier, Sharp....4½@4¾¢
Perkins', Blunt Toe....per lb 3.65¢
Perkins', Sharp Toe....per lb 4.15¢

Can Openers—

See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern	$1.35	1.85	2.05 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$18.00	60.00	129.60 gro., net.

Caps, Percussion—

Eley's E. B....52@55¢
G. D....per M 34@35¢
F. L....per M 40@42¢
G. E....per M 48@50¢
Musket....per M 62@63¢

Primers—

Berdan Primers, $2 per M...20%
B. L. Caps (Sturtevant Shells) $2 per M....20%
All other primers per M.$1.35@1.60

Cartridges—

Blank Cartridges:
32 C. F., $5.50....10&5%
38 C. F., $7.00....10&5%
22 cal. Rim, $1.50....10&5%
32 cal. Rim, $2.75....10&5%
B. B. Caps, Con. Ball, Swgd..$1.90
B. B. Caps, Round Ball....$1.49
Central Fire....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets.15&10%
Rim Fire, Sporting....50%
Rim Fire, Military....15&5%

Casters—

Bed....70@70&10%
Plate....60&10@60&10&5%
Philadelphia....75@75&10%
Acme, Ball Bearing....33⅓%
Boss....70&10%
Boss Anti-Friction....70&10%
Gem (Roller Bearing)....80%
Martin's Patent (Phoenix)....45%
Standard Ball Bearing....45%
Tucker's Patent low list....30%
Yale (Double Wheel) low list....50%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Coil—

American Coil, Straight Link:

5-16	¼	*5-16*	⅜	*7-16*	½	*9-16*
$7.95	*5.40*	*4.50*	*3.85*	*3.70*	*3.60*	*3.55*
⅝	¾	⅞ *to 1*	1⅛ *to 1¼ inch.*			
$3.50	*3.40*	*3.35*	*3.45 per 100 lb.*			

German Coil....60&10&10@70%

Halter—

Halter Chains...60&10@60&10&10%
German Pattern Halter Chains, list July 24, '97....60&10&10%
Covert Mfg. Co.
Halter....35&5%
Covert's Saddlery Works
Halter....70%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-8, Str'ght, with ring..$23.50
6½—6-2, Str'ght, with ring..$24.50
6½—6-2, Str'ght, with ring..$28.00
6½—10-2, Str'ght, with ring..$32.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Trace, Wagon and Fancy Chains....60&5@60&10&5%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron....60&10&5@70%
Brass....60&10@60&10&10%
Safety Chain....75@75&10%
Gal. Pump Chain....lb. 5@5¼¢
Covert Mfg. Co.:
Breast....35&5%
Heel....35&5%
Rein....35&5%
Stallion....35&5%
Covert Sad. Works:
Breast....70%
Hold Back....70%
Rein....70%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains....45@60&5%
Wire Goods Co.:
Dog Chain....70&10%
Universal Dbl. Jointed Chain....50%

Chain and Ribbon, Sash—

Oneida Community:
Copper Chain....60&5%
Steel Chain....60%
Pullman:
Bronze Chain....60%
Steel Chain....60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft....$1.25@3.00
Sash Ribbon Attachments, per set.8¢

Chalk—(From Jobbers.)

Carpenters' Blue....gro. 38@40¢
Carpenters' Red....gro. 33@35¢
Carpenters' White....gro. 28@30¢
See also Crayons.

Checks, Door—

Bardsley's....45%
Eclipse....60&10%
Pullman, per gro....$54.00
Russwin....40%

Chests, Tool—

American Tool Chest Co.:
Boy's Chests, with Tools....55%
Youths' Chests, with Tools....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools....20%
Machinists' and Pipe Fitters' Chests, Empty....50%
Tool Cabinets....50%
C. E. Jennings & Co.'s Machinists' Tool Chests....33⅓&10%

Chisels—Socket Framing and Firmer

Standard List....75@75&10%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Socket Firmer No. 10....60%
C. E. Jennings & Co. Socket Framing No. 15....60%
Ohio Tool Co.'s....70%
Swan's....75%
L. & I. J. White....30@30&5%

Tanged—

Tanged Firmers....33 1-3@40%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Nos. 191, 181..25%
L. & I. J. White, Tanged....25&5%

Cold—

lb.
Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Chisels, ordinary...9@10¢

Chucks—

Beach Pat., each $8.00....35&5%
Empire....25%
Blacksmiths'....25%
Jacobs' Drill Chucks....35%
Pratt's Positive Drive....25%
Skinner Patent Chucks:
Independent Lathe Chucks....50%
Universal....50%
Combination....50%
Drill Chucks, New Model....30%
Drill Chucks, Standard....45%
Drill Chuck, Skinner Pat., all sizes.35%
Drill Chucks, Positive Drive....30%
Planer Chucks....25%
Face Plate Jaws....40%
Standard Tool Co.:
Improved Drill Chuck....45%
Union Mfg. Co.:
Combination....50%
Czar Drill....35%
Combination Geared Scroll....40%
Geared Scroll....40%
Independent....50%
Independent Steel....40%
Union Drill....45%
Universal....50%
Independent Iron F. Plate Jaws.40%
Independent Steel F. Plate Jaws.40%
Westcott Patent Chucks:
Lathe Chucks....50%
Little Giant Auxiliary Drill....50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved....50%
Oneida Drill....50%
Scroll Combination Lathe....50%

Clamps—

Adjustable, Hammers'....20@20&5%
Cabinet, Sargent's....50&10%
Carriage Makers', P., S. & W. Co....40&10@50%
Carriage Makers', Sargent's....60%
Besly, Parallel....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co....40%
Saw Clamps, see Vises, Saw Filers'.
Wood Workers, Hammers'....40&10%

Cleaners, Drain—

Iwan's Champion, Adjustable....55%
Iwan's Champion, Stationary....45%

Sidewalk—

Star Socket, All Steel..per doz. $4.05 net
Star Shank, All Steel..per doz. $3.24 net
W. & C. Shank, All Steel, per doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—

Foster Bros....30%
New Haven Edge Tool Co.'s....45%
Fayette R. Plumb....33⅓&33⅓&10%
L. & I. J. White....30%

Clippers—

Chicago Flexible Shaft Company:
'98 Chicago Horse....$8.75 } 15%
1902 Chicago Horse....10.75 }
20th Century Horse, each, $5.00...20%
Lightning Belt....$15.00 } 15%
Chicago Belt....$20.00 }
Stewart's Patent Sheep, $12.75....20%

Clips, Axle—

Eagle, 5-16 and ⅜ in..75@75&10%
Norway, 5-16 and ⅜ in..60&10@70%

Cloth and Netting, Wire

—See *Wire, &c.*

Cooks, Brass—

Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks....75@75&5%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list....40%
Leather, Walter B. Stevens & Son's list....40%

Combs, Curry—

Metal Stamping Co....40%

Mane and Tail—

Covert's Saddlery Works....60&10%

Compasses, Dividers, &c.

Ordinary Goods....75&5@75&10%
Bemis & Call Hdw. & Tool Co.:
Dividers....65%
Calipers, Double....65%
Calipers, Inside or Outside....65%
Calipers, Wing....60%
Compasses....50%

Conductor Pipe,—

L. C. L. to Dealers: Galvanized.

Territory.	*Nested.*	*Not neated.*
Eastern	*....70&13%*	*70&10%*
Central	*....70&7½%*	*70&2½%*
Southern	*....70&2½%*	*60&20%*
So. Western	*..60&20%*	*60&10%*
Copper.		*1¼&16 oz.*
Eastern		*.50&10%*
Central		*.50&7½%*
Southern		*.5%&5%*
So. Western		*.50&2½%*

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal, each..	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.	3	4	6	8	
Iceland, ea.	$1.80	$2.10	$2.40	$3.00	
Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled....25%
Agate Lined....25%

Coopers' Tools—

See *Tools, Coopers'.*

Coppers' Soldering—

Soldering Coppers, 3 lbs. to pair and heavier, 20½@21¼¢; lighter than 3 lbs. to pair.22½@23¼¢

Cord—Sash—

Braided, Drab....lb. 35¢
Braided, White, Com., Nos. 8 to 12, 23¢; No. 7, 23½¢; No. 6, 24½¢.
Cable Laid Italian....lb., A, 18¢; B, 16¢
Common India....lb. 10@10½¢
Cotton Sash Cord, Tw'ted..17@19¢
Patent Russia....lb...@14¢
Cable Laid Russia....lb...@15¢
India Hemp, Braided..lb...@18¢
India Hemp, Twisted..lb. 12@13¢
Patent India, Twisted..lb. 12@13¢
Anniston Cordage Co.: Braided Cotton.
Old Glory, Nos. 7 to 12....per lb 29¢
Anniston, Nos. 8 to 12, 23¢; No. 7, 23½¢; No. 6, 24½¢; Anniston Drab, Nos. 7 to 12, per lb, 26¢; Anniston Mahogany, 27¢.
Pearl Braided, cotton, No. 6, per lb, 24½¢; No. 7, 23½¢; Nos. 8 to 12, 23¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10....per lb 23 ¢
Peerless:
Cable Laid Italian....16 ¢
Cable Laid Russian....14 ¢
Cable Laid India....12 ¢
Braided India....18 ¢
Pullman:
Wire Sash Cord....10%
Sash Cord Attachments, per doz.10¢
Samson, Nos. 8 to 12:
Braided, Drab Cotton....per lb 40 ¢
Braided, Italian Hamp....per lb 40 ¢
Braided, Linen....per lb 55 ¢
Braided, White Cotton or Spot....per lb 35 ¢
Massachusetts, White....per lb 28 ¢
Massachusetts, Drab....per lb 32 ¢
Phoenix, White, Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Silver Lake:
A quality, Drab....40 ¢
A quality, White....35 ¢
B quality, Drab....35 ¢
B quality, White....30 ¢
Italian Hemp....40 ¢
Linen....57½¢
Case lots, 2½%
See also Chain and Ribbon.

Wire, Picture—

List Oct., '00....85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10&5%

Cradles—

Grain....40&12½%

Crayons—

White Round Crayons, gr. 6@6½¢
Cases, 100 gro., $5.00 at factory.
D. M. Steward Mfg. Co.:
Jumbo Crayons....gr. $3.50
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square....gr. $1.50
Rolling Mill Crayons....gr. $2.50
Railroad Crayons (composition) gr. $2.00
Zelnicker's Lumber:
Red, Blue, Green....per gro. $6.50
Black....per gro. $4.00
See also Chalk.

Crooks, Shepherds'—

Fort Madison, Heavy....per doz. $7.00
Fort Madison, Light....per doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden....50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847....per doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor....per doz. $3.00
Wm. Rogers & Son....per doz. $2.50

Cutters—Glass—

H. H. Mayhew Co....40%
Red Devil....50%
Smith & Hemenway Co....50%
Woodward....40%

Meat and Food—

American....30%

Nos.	1	2	3	4	5
Each	$5	$7	$10	$25	$50	$60

Enterprise....25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

Dixon's....per doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal....40&10@50%
Little Giant....per doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E. Food Choppers....25%
New Triumph No. 605, per doz. $24.00....40@50%
Russwin Food, No. 1, $21.00; No. 2, $27.00....45&10&10%
Woodruff's....per doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers....25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw, Corn Grater, &c....40%
Kraut Cutters, 21 x 7, 26 x 8, 30 x 9....55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....per doz. $3.00
Combined Slaw Cutter and Corn Grater....per doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters....40%
Slaw Cutters, 1 Knife....per gr. $18@$20
Slaw Cutters, 2 Knife...per gr. $22@$30

Tobacco—

All Iron, Cheap..doz. $1.25@$4.50
Enterprise....25@30%
National, per doz., No. 1, $21; No. 2, $18....40%
Sargent's, per doz., No. 2....60%
Sargent's, Nos. 12 and 21....60&10%

Washer—

Appleton's, per doz., $16.00....50&10&10%

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger..per doz., $9.00
Iwan's Improved Post Hole Auger.40&5%
Iwan's Vaughan Pattern Post Hole Augers....per doz. $6.25
Iwan's Perfection Post Hole Digger..per doz. $8.25
Iwan's Split Handle Post Hole Diggers....per doz. $7.25
Kohler's Universal....per doz. $14.00
Kohler's Little Giant....per doz. $12.00
Kohler's Hercules....per doz. $10.00
Kohler's Invincible....per doz. $9.00
Kohler's Rival....per doz. $8.00
Kohler's Pioneer....per doz. $7.00
Never-Break Post Hole Diggers, per doz., $24.00....60%
Samson, per doz. $34.00....25%

Dividers—See *Compasses.*

Doors, Screen—

Phillips', style E, ⅞ in....per doz. $10.00
Phillips', style 077, ⅞ in....per doz. $7.50
Phillips', style x-y, ⅞ in....per doz. $10.50

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, per doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—

See *Knives, Drawing.*

Dressers, Emery Wheel—

Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—

Common Blacksmiths' Drill, each....$1.50@$1.75
Breast, Millers Falls....15&10%
Breast, P., S. & W....40%
Goodell Automatic Drills..40&5@10&10%
Johnson's Automatic Drills, Nos. 2 and 3....16⅔%
Johnson's Drill Points....16⅔%
Millers Falls Automatic Drills.33⅓&10%
Ratchet, Curtis & Curtis....25%
Ratchet, Parker's....40%
Ratchet, Weston's....40%
Ratchet, Weston's, Style H Improved....40%
Ratchet, No. 012....40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00....33⅓%

Twist Drills—

Bit Stock....60&10&10@70%
Taper and Straight Shank....60&10@60&10&5%

Drivers, Screw—

Screw D'ver Bits, per doz..45@50¢
Balsey's Screw Holder and Driver, per doz., 2½-in., $6; 4-in., $7.50; 6-in., $9....50%
Buck Bros.' Screw Driver Bits....30%
Champion....50%
Edson....60%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Gay's Double Action Ratchet....35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood....40%
Mayhew's Black Handle....40%
Mayhew's Monarch....40&10%
Millers Falls, Nos. 20 and 21....25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co.....50&10%
Sargent & Co.'s:
Nos. 1 and 60....50&10&10%
Nos. 50, 53 and 55....60&10%
Nos. 20 and 40....70&10%
Smith & Hemenway Co....40&5%
H. D. Smith & Co.'s Perfect H'dle.40%
Stanley R. & L. Co.'s:
No. 64, Varn. Handles....65%
No. 86....75%
Victor....55%
Defiance....70%
Swan's:
Nos. 7565 to 7568....50%
No. 7540....40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L.*
Eastern	*....80&5%*
Central	*....75&10&10%*
Southern	*....75&12½%*
So. Western	*....75&5%*

Terms,—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories:
Galv. Steel and Galv. C. C. Iron and Steel, Standard Gauge....60&10%
No. 26....35%
No. 24....25%
No. 22....10%
Copper....37½%
Perfect Elbows (S., S. & Co.)....40%

Emery, Turkish—

½ to 46 5½ to 220 Flour.

Kegs....lb.	*5 ¢*	*5½ ¢*	*5½ ¢*
½ Kegs....lb.	*5¼ ¢*	*5¾ ¢*	*5¾ ¢*
¼ Kegs....lb.	*5½ ¢*	*6 ¢*	*4 ¢*
10-lb. cans, 10 in case....	*6½ ¢*	*7 ¢*	*6 ¢*
10-lb. cans, less than 10....	*10 ¢*	*10 ¢*	*8 ¢*
Less quantity..	*10 ¢*	*10 ¢*	*8 ¢*

NOTE.—To lots 1 to 3 tons a discount of 10¢ is given.

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—
Ives 40%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined..
60&10@70%
Red Cedar.....40&10@50%
Petroleum.....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined..
50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&5%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 2½, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103.....$3.75
Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.25*	*3.75*	*4.25*	*4.75*

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Sargent's 70%
Stowell's Giant Grindstone Hanger..
℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy .....50&10&10%
Stowell's Grindstone Fixtures, Light..
60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....60%
Victor, Header.....65%
Champion, Hay.....60%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz.75@80¢
Red, S'g't Bar, per doz..$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.30*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped.. 3.65
Waterproof Dbl. Taped.. 4.40
Waterproof Tpl. Taped.. 5.15
} 10&5%

Gates, Molasses and Oil—
Stebbins' Pattern.80&10@80&10&5%

Gauges—
Marking, Mortise, &c..50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....35%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $3.00; 2, $3.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $3.30; 2, $3.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush..
25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....gro. $4.50@6.00
Dixon's Everlasting..10-lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ℔ doz.
1 lb, $1.20; 2 lb, $2.00
Helmet Hard Oil.....25%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00
Pike Mower and Tool Grinder, each $6.00
} 25 & 33⅓
Velox Ball Bearing, Mounted, Angle Iron Frames, each.....$3.00

Halters and Ties—
Cow Ties.....60@60&10%
Covert Mfg. Co.:
Web .....35&5%
Jute Rope.....50%
Sisal Rope.....30&10%
Cotton Rope.....45%
Hemp Rope.....45%
Covert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters.....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties 60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—
Handled Hammers—
Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....
33⅓&7½@33⅓&10&7½%
Engineers' and R. S. Hand.....
50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....
40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—
Under 3 lb., per lb..50¢.80¢5@—%
3 to 5 lb., per lb., 40¢..80¢5@—%
Over 5 lb., per lb., 30¢,
80¢10¢5@—%
*Wilkinson's Smiths'...*lb. *9½@10¢*

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60¢10@60¢10¢5%
Hoe, Rake, &c.....45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—
Atkins' 40%
Champion .....45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro. $2.50@3.00
Brad Awl.....gro. $1.65@1.75
Chisel Handles:
Apple Tanged Firmer, gro. assorted .....$2.40@2.65
Hickory Tanged Firmer, gro. assorted .....$2.15@2.40
Apple Socket Firmer, gro. assorted .....$1.75@1.95
Hickory Socket Firmer, gro. assorted .....$1.45@1.60
Hickory Socket Framing, gro. assorted .....$1.60@1.75
File, assorted.....gro. $1.30@1.40
Hammer, Hatchet, &c.
60&10@60&10&5%
Hand Saw, Varnished, doz. 80&85¢; Not Varnished...65@75¢
Plane Handles:
Jack, doz. 80¢; Jack, Bolted.75¢
Fore, doz. 45¢; Fore, Bolted.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.....
℔ gro. $0.85@$1.50

Hangers—
NOTE—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c
Allith Mfg. Co.:
Reliable, No. 1.....per doz. $2.00
Reliable, No. 2.....per doz. $0.60
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Cuisnolm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$1.00
Parlor, Standard.....$3.15
Parlor, No. 105.....$2.85
Parlor, New Model.....$2.80
Parlor, New Champion.....$2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance .....60&10%
Cleveland 75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
Peerless 75%
Sterling .....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10.50&10%
Roller B'r'g St'l Track No. 12.$2.15
Roller B'r'g St'l Track No. 13.$2.30
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17.....$1.25
Trolley F. D. No. 120.....$2.10
Trolley F. D. No. 121.....$2.25
Trolley F. D. No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44 2½ and 3 60&10%
Palaco, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24.....$1.30
Trolley B. D. No. 27.....$1.40
Trolley B. D. No. 28.....$1.60
Roller Bearings Nos. 39, 41, 43 .....75%
Anti-friction No. 42.....60&20%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas 60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator 40%
Express 50%
Freight Car Door.....60%
Interstate .....60&10%
Lundy Parlor Door.....50&10%
Magic 60%
Matchless .....60&10%
Nansen .....70&5%
Parlor Door.....50&10%
Railroad .....50&10%
Rex Hinge Door.....60%
Street Car Door.....50%
Steel, Nos. 300, 404, 500...50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back.....70%
Climax Anti-Friction.....50&10%
Eagle 70%
Hylo Hinge.....60%
New Perfection.....60%
Pilot 60%
Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing..℔ doz. $5.00
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50%
Dwarf Ball Bearing.....40%
Ives, Wood Track.....60&10%
L. T. Roller Bearing....60&10&5%
New Era Roller Bearing..50&10%
O. K. Roller Bearing..60&10&5%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50&10%
Spencer Roller Bearing....60&10%
Tandem, Nos. 1 and 2.....60%
Underwriters' Roller Bearing..40%
Velvet 50%
Wilcox Auditorium Ball B'r'g.20%
Wilcox Barn Trolley No. 123..40%
Wilcox Elv. Door, Nos. 112 and 122¼.....50%
Wilcox Elv. Door, No. 132....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century..50&10&10%
Wilcox O. K. Steel Track....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing..40%
Wilcox Wideman Narrow Gauge Ball Bearing.....40%
For Track, see Rail.
} Extra 5&10% often given.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled.. $27.00
Victor Folding.....℔ gro. $9.00
Western, W. G. Co.....70&10%

Gate—
Myers' Patent Gate Hangers, ℔ doz. net $4.50

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—
Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 11 and 13..75&10%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 66 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5....
75&10&5%
Tip Pat'n, Nos. 1, 3 & 5...75&10&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L'f'chs.	*$2.00*	*2.70*	*5.00*
Hinges only	*1.40*	*2.05*	*3.80*
Latches only	*.70*	*.70*	*.35*

New England:
With Latch.....doz. ....@$2.00
Without Latch...doz. ....@$1.60
Reversible Self-Closing:
With Latch.....doz. ....@$1.75
Without Latch...doz. ....@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz. $1.15
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets, Nos. 1 2 3
Hinges with Latches..$2.00 2.70 5.00
Hinges only..... 1.40 2.05 3.80
Latches only..... .70 .70 1.35

Pivot Hinges—
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron...$6.50@$6.75
Non-Holdback, Cast Iron $6.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges.....40%
No. 990 Wrot. Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, No. 14.....℔ gr. $9.00
Columbia, No. 18.....℔ gr. $25.00
Columbia, Adjustable, No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k.℔ gro. pr.$9
} Extra 10% often given on most of these Hinges.

CHANTRELL TOOL COMPANY, Reading, Pa.: Harry C. Shaaber.
CHAPIN-STEPHENS COMPANY, Pine Meadow, Conn.: F. M. Chapin, H. M. Chapin, F. L. Stephens.
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CLINTON WIRE CLOTH COMPANY, Clinton, Mass.: C. F. Fairbanks, Jr., J. S. Sampson.
CLYDE CUTLERY COMPANY, Clyde, Ohio: R. B. Jones.
COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: W. B. Wood, C. T. Stork, W. N. McNeil, W. O. Whitcher, Ludlow S. Sherwood.
CORBIN, P. & F., New Britain, Conn.: Charles H. Parsons, Charles B. Parsons, W. E. Bartholomew, G. A. Overton.
CORBIN CABINET LOCK COMPANY, New Britain, Conn.: C. H. Baldwin, George W. Corbin, George L. Corbin, A. L. Mackay.
CORBIN SCREW CORPORATION, New Britain, Conn.: Charles Glover, Fred. W. Fee, G. P. Fitch, C. A. Earl.
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DANA MFG. COMPANY, Cincinnati, Ohio: George F. Dana, Frank M. Snook, L. W. Stewart, M. G. Rodearmel.
N. R. DAVIS & SONS, Assonet, Mass.: N. W. Davis.
THOS. DEVLIN MFG. COMPANY, Philadelphia: Wm. J. Devlin.
DILLE & MCGUIRE MFG. COMPANY, Richmond, Ind.: C. A. McGuire.
DOMESTIC SEWING MACHINE COMPANY, Newark, N. J.. William Nicoll, J. W. Crooks.
DOVER MFG. COMPANY, Canal Dover, Ohio: C. T. Johnson, R. F. Lund, A. S. Howe, O. A. Keyser.
DROESCHER, S. R., New York: S. R. Droescher.
DU PONT, E. I., COMPANY, Wilmington, Del.: Eugene Du Pont, J. G. Ewing, J. T. Skelly.
EAGLE LOCK COMPANY, New York: H. B. Plumb, G. W. Carter, F. D. Ford, C. W. Plumb.
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FERROSTEEL COMPANY, Cleveland, Ohio: A. E. Menke.
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GARLAND NUT & RIVET COMPANY, Pittsburgh, Pa.: Robert Garland, Willard S. Harvey.
GRIFFIN MFG. COMPANY, Erie, Pa.: James C. Griffin.
GOODELL COMPANY, Antrim, N. H.: Hon. D. H. Goodell, R. C. Goodell, A. W. Bond.
GOODELL-PRATT COMPANY, Greenfield, Mass.: Wm. M. Pratt.
GRAHAM NUT COMPANY, Pittsburgh, Pa.: Chas. J. Graham.
HAMILTON RIFLE COMPANY, Plymouth, Mich.: W. B. Penfield.
HART & COOLEY COMPANY, New Britain, Conn.: Howard S. Hart, Norman P. Cooley.
HERO FRUIT JAR COMPANY, Philadelphia: John L. Chapman.
HOPKINS & ALLEN ARMS COMPANY, Norwich, Conn.: Charles B. Lee, Edward E. Perry, O. R. Claus.
HUNTER ARMS COMPANY, Fulton, N. Y.: John Hunter.
HUSSEY-BINNS SHOVEL COMPANY, Pittsburgh, Pa.: R. H. Binns, George V. Willson, Jos. H. Martin, Jos. H. Grubb.
IRON CITY TOOL WORKS, LIMITED, Pittsburgh, Pa.: Wm. H. Hays.
IRWIN AUGER BIT COMPANY, Wilmington, Ohio: F. S. Colvin.
IVER JOHNSON'S ARMS & CYCLE WORKS, Fitchburg, Mass.: W. A. Shepard, F. I. Clark.
KAMPFE BROS., New York: D L .Winchester II.
KELLY AXE MFG. COMPANY, Charleston, W. Va.: James P. Kelly, George T. Price.
KEUFFEL & ESSER COMPANY, New York: L. Schermerhorn.
KLAUER MFG. COMPANY, Dubuque, Iowa: W. H. Klauer.
KORN, GEORGE W., RAZOR MFG. COMPANY, Little Valley, N. Y.: George W. Korn.
LAMSON & SESSIONS COMPANY, Cleveland, Ohio: George M. North, H. C. Holt, F. C. Case.
LANDERS, FRARY & CLARK, New Britain, Conn.: Charles F. Smith, George M. Landers, George B. Nicols, Arthur G. Kimball.
LAWSON MFG. COMPANY, Chicago, Ill.: W. H Bennett.
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LOCKWOOD MFG. COMPANY, South Norwalk, Conn.: George E. Eddy.
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MACK & CO., Rochester, N. Y.: Amos P. Mack.
MANNING-BOWMAN COMPANY, Meriden, Conn.: H. S. Mirrielees. Geo. E. Savage.
MARLIN FIRE ARMS COMPANY, New Haven, Conn.: Chas. Porter.
MCCAFFREY FILE COMPANY, Philadelphia, Pa.: J. J. McCaffrey.
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MORRILL, CHARLES, New York: Julian A. Hurdle.
NATIONAL-ACME MFG. COMPANY, Cleveland, Ohio: W. S. Chase, O. S. Wernts.
NATIONAL ENAMELING & STAMPING COMPANY, New York: William H. Matthai, George W. Knapp, George H. Harper.
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NIAGARA MACHINE & TOOL COMPANY, Buffalo, N. Y.: Wm. F. Schweigert.
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NORTH BROS. MFG. COMPANY, Philadelphia, Pa.: R. H. North, A. C. Albrecht, James Kinsman.
NORTON TOOL COMPANY, West Park, Ohio: W. T. Norton.
NORWALK LOCK COMPANY, South Norwalk, Conn.: George J. Adam.
OHIO TOOL COMPANY, Columbus, Ohio: Wm. E. Jones, Wm. G. Miller.
OLIVER IRON & STEEL COMPANY, Pittsburgh, Pa.: Henry B. Lupton, George T. Bailey, W. P. Smith.
ONEIDA COMMUNITY, Kenwood, N. Y.: P. B. Noyes, S. R. Leonard, A. M. Kinsley.
PARKER, CHARLES, COMPANY, Meriden, Conn.: W. F. Parker, Frederick Pease, D. W. Shanks.
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STANDARD HORSE SHOE COMPANY, Boston, Mass.: George S. Boutwell.
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TOBIN ARMS MFG. COMPANY, Norwich, Conn.: Frank M. Tobin.
U. S. HOE & TOOL COMPANY, Columbus, Ohio: B. F. Hadley.
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UNION MFG. COMPANY, New Britain, Conn.: M. L. Bailey.
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WABASH SCREEN DOOR COMPANY, Chicago, Ill.: E. M. Kemp.
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WARD-DICKEY STEEL COMPANY, Indian Harbar, Ind.: W. C. Dickey.
WARREN, J. D., MFG. COMPANY, Chicago, Ill.: J. D. Warren.
WARWOOD TOOL COMPANY, Wheeling, W. Va.: John A. Moore.
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HOFFMAN HARDWARE COMPANY, Los Angeles, Cal.: E .A. Hoffman.
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BRONSON & TOWNSEND COMPANY, New Haven, Conn.: W. A. Watts, Lewis H. Bronson.
L. L. ENSWORTH & SON, Hartford, Conn.: L. L. Ensworth.
F. P. MAY & Co., Washington, D. C.: F. P. May.
BECK & GREGG HARDWARE COMPANY, Atlanta, Ga.: W. M. Crumley.
KING HARDWARE COMPANY, Atlanta, Ga.: George E. King.
PALMER HARDWARE COMPANY, Savannah, Ga.: A. B. Palmer.
TROUT HARDWARE COMPANY, Chicago, Ill.: George W. Trout.
CLARK, QUIEN & MORSE, Peoria, Ill.: Chas. D. Clark.
TENK HARDWARE COMPANY, Quincy, Ill.: Rudolph Tenk.
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POGUE, MILLER & Co., Richmond, Ind.: Geo. W. Miller.
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KNAPP & SPENCER COMPANY, Sioux City, Iowa: C. A. Knapp.
CHARLES F. SCHMIDT HARDWARE COMPANY, Burlington, Iowa: H. B. Buhrmaster.
SICKLES, PRESTON & NUTTING COMPANY, Davenport, Iowa: Col. J. R. Nutting.
CUTLER HARDWARE COMPANY, Waterloo, Iowa: F. E. Cutler.
HUBER & KALBACH COMPANY, Oskaloosa, Iowa: J. S. Hayes.
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HOCKADAY HARDWARE COMPANY, Wichita, Kan.: I. N. Hockaday.
A. J. HARWI HARDWARE COMPANY, Atchison, Kan.: W. H. Harwi.
BLISH, MIZE & SILLIMAN HARDWARE COMPANY, Atchison, Kan.: J. B. Silliman.
STAUFFER, ESHLEMAN & Co., New Orleans, La.: Col. B. F. Eshleman.
EMERY-WATERHOUSE COMPANY, Portland, Maine: W. Chamberlain.
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CARLIN & FULTON, Baltimore, Md.: Geo. L. Irvin, David M. Fulton.
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FRYE, PHIPPS & Co., Boston, Mass.: E. L. Richards.
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WYETH HARDWARE & MFG. COMPANY, St. Joseph, Mo.: J. A. Warner.
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IRVING D. BOOTH, Elmira, N. Y.: Irving D. Booth.
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H. W. LUETKEMEYER & SONS, Cleveland, Ohio: E. H. Luetkemeyer.
KRUSE & BAHLMANN HARDWARE COMPANY, Cincinnati, Ohio: Felix Bahlmann, Clarence Bahlmann.
SMITH BROS. HARDWARE COMPANY, Columbus, Ohio: O. L. Davis.
BOSTWICK, BRAUN & Co., Toledo, Ohio: H. L. Thompson, M. H. Nusbaum.
STOLLBERG HARDWARE COMPANY, Toledo, Ohio: John Stollberg.
SUPPLEE HARDWARE COMPANY, Philadelphia, Pa.: William W. Supplee, James S. Bonbright.
BIDDLE HARDWARE COMPANY, Philadelphia, Pa.: Chas. M. Biddle, James H. Ritter, Edward Knight, David H. Reddle.
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T. JAMES FERNLEY, Philadelphia, Pa.: T. James Fernley, T. A. Fernley.
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OTT-HEISKELL HARDWARE COMPANY, Wheeling, W. Va.: W. P. Heiskell.
FREDERICK KRONER HARDWARE COMPANY, La Crosse, Wis.: Jno C. Kroner.

OTHER VISITORS.

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E. J. BENNETT, Nettlefold & Sons, Limited, London, England.
F. W. SCHROEDER, Nettlefold & Sons, Limited, Melbourne, Australia.
DANIEL DAVENPORT, American Anti-Boycott Association, Bridgeport, Conn.
FRANK E. MANN, Lewistown, Pa.
J. B. MERRELL, Co-operating Merchants' Company, Toledo, Ohio.
C. A. BIRGE, Canada Screw Company, Hamilton, Ont.
T. G. DIXIE, Toronto, Ont.
T. D. LEE, Rice, Lewis & Co., Toronto, Ont.
C. W. GOODMAN, Co-operating Merchants' Company, Toledo, Ohio.
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A. A. NORTON, official stenographer, Chicago.
GEO. P. KELLEY, official stenographer, Atlantic City, N. J.
CLEMENT M. BIDDLE, Biddle Purchasing Company, New York.
H. H. BISHOP, Cleveland, Ohio.
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M. L. COREY, secretary National Retail Hardware Association, Argos, Ind.
E. M. BUSH, vice-president National Retail Hardware Association, Evansville, Ind.
S. R. MILES, National Retail Hardware Association, Mason City, Iowa.
T. FRANK IRELAND, National Retail Hardware Association, Belding, Mich.
C. B. CARTER, secretary Southern Hardware Jobbers' Association, Knoxville, Tenn.
C. A. LYON, Bangor, Maine.
W. B. FOX, W. B. Fox & Bro., New York.
ALFRED C. GREENING, R. K. Carter Company, New York.
G. HARDY, secretary-treasurer Canadian Wholesale Hardware Association, Toronto, Ont.
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GEO. REUTER, JR., Mutual Trading Company, New York.
M. G. RODEARMEL, Minneapolis, Minn.
WILLIAM SHAW, Quebec, Can.
WILLIAM VALLANCE, president Canadian Wholesale Hardware Association, Hamilton, Can.
C. A. WHITMAN, Montreal, Can.
CHAS. H. WIER, Wier & Wilson, Baltimore, Md.
H. T. HUNTER, *Hardware and Metal*, Toronto, Can.
JAMES H. KENNEDY, *Hardware Dealers' Magazine*, New York.
A. P. MITCHELL, *Hardware*, New York.
J. W. PENTZ, *Hardware*, New York.
DANIEL STERN, the *American Artisan*, Chicago.
WATSON S. ANTHONY, the *American Artisan*, Chicago.
DAVID WILLIAMS, *The Iron Age*, New York.
R. R. WILLIAMS, *The Iron Age*, New York.
W. C. ENGLISH, *The Iron Age*, Boston.
S. S. RECKEFUS, *The Iron Age*, Philadelphia.
A. H. CHAMBERLAIN, *The Iron Age*, New York.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our catalogue department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.

MAST, Foos & Co., Springfield, Ohio: Catalogue No. 27 illustrating and describing Imperial Wind Mills and Galvanized Steel Towers, with accessories.

O. C. WHITE COMPANY, Worcester, Mass.: Circulars referring to Adjustable Portable Lamp and Strap Clamp Desk Fixture for incandescent lights.

LEAVITT MACHINE COMPANY, Orange, Mass.: A neat folder describing the Barrett Improved Roller Gauge, which is referred to as accurately made and finely finished.

B. A. STEVENS, Toledo, Ohio: Catalogue devoted to Cooling Rooms, Refrigerators, Ice Boxes and Refrigeration.

ZEPHYR VENTILATOR MFG. COMPANY, Philadelphia, Pa.: Booklet referring to the Philadelphia Radial Lamp Holder for incandescent lamps.

J. R. CLANCY, Syracuse, N. Y.: Price-list No. 17 of Sure Grip Rust Proof Hose Clamps and Hose Goods.

GEUDER & PAESCHKE MFG. COMPANY Milwaukee, Wis.: Pocket catalogue of American Blue and White, Cream City Gray and Opaline Enameled Ware.

THE LORILLARD REFRIGERATOR COMPANY, 23 West Thirty-fourth street, New York: Catalogue of Refrigerators for all purposes.

HERRICK REFRIGERATOR & MFG. COMPANY, Kansas City, Kan.: Catalogue and circulars, profusely illustrated, referring to Refrigerators and Cooling Rooms built on the Quinn patent system of refrigeration.

WILSON SAW & MFG. COMPANY, Port Huron, Mich.: Illustrated catalogue of Saws of every description, containing valuable information on the care of Saws, kinds of Saws to use, diagrams of teeth, &c.

ROLLMAN MFG. COMPANY, Mount Joy, Pa.: Catalogue of Household Specialties No. 1160, with booklet showing a large assortment of mortised advertising cuts furnished gratis to merchants handling the Rollman Food Chopper.

SUN VAPOR STREET LIGHT COMPANY, Canton, Ohio: Catalogue and price-list referring to Sun Incandescent Lamps and Supplies.

AKRON GAS LAMP COMPANY, Akron, Ohio: Booklet and circulars illustrating and describing Economy Hydro Carbon Lamps, Street lights, &c.

CHICAGO SOLAR LIGHT COMPANY, Chicago, Ill.: Catalogue of Nulite Incandescent Vapor Gas Lamps for indoor and outdoor use.

GEORGE P. CLARK COMPANY, Windsor Locks, Conn.: Booklet illustrating Double Platform Press Trucks, Platform Trucks for printing house use, &c.; also booklet illustrating special Trucks for butchers, rendering houses, soap manufacturers, &c.

MERIDEN BRITANNIA COMPANY, Meriden, Conn., International Silver Company, successor: "The Silver Standard," illustrating combination sets of Flat Ware, Complete Chests, Hollow Ware, &c., for the holidays.

BENJAMIN S. ALDER COMPANY, 37 Warren street, New York, manufacturers' export representative: Illustrated price current of the goods produced by the manufacturers whom the company represents.

PORTER SCREEN MFG. COMPANY, Burlington, Vt.: Illustrated catalogue devoted to Screen Doors and Window Screens.

THE BUCKEYE CHURN COMPANY, Sidney, Ohio: Price-lists illustrating Churns, Washing Machines, Horse Pails, Root and India Palmetto Scrub and Horse Brushes.

THE AVERY STAMPING COMPANY, Cleveland, Ohio: Supplement to the company's 1900 catalogue, illustrating with sizes and list prices the various styles of Heavy Steel Covers which are furnished with its line of Never Break Seamless Hotel Ware.

S. F. HAYWARD & CO., 20 Warren street, New York: Illustrated pamphlet relating to the Hayward Hand Grenade Fire Extinguisher.

CLEVELAND RUBBER WORKS of the Mechanical Rubber Company, Cleveland, Ohio: Folder, illustrating specimens of the company's work in Molded Soft Rubber parts for various purposes.

AMERICAN IRONING MACHINE COMPANY, 100 North Clinton street, Chicago, Ill.: Catalogue illustrating and describing Ironing Machines for home use.

WOLF, SAYER & HELLER, 37 Pearl street, New York: Illustrated catalogue devoted to Packers', Butchers' and Sausage Makers' Tools, Machinery and Supplies; also showing photographic reproductions of some stores and markets provided with Counters, Shelving and Fixtures by this firm.

ERIE SPECIALTY COMPANY, Erie, Pa.: Illustrated circular of Walker's Self Pulling Cork Screws.

WATERHOUSE & LESTER COMPANY.

ON January 1 the interests of the Lloyd-Scovel Iron Company, with stores at San Francisco and Los Angeles, and Waterhouse & Lester, Incorporated, with stores at San Francisco, Sacramento and San José, Cal., and Portland, Ore., will be amalgamated under the style of Waterhouse & Lester Company. The capital stock of the new corporation will be $2,000,000. The administrative corps will be as follows: E. W. A. Waterhouse, president; George S. Scovel, vice-president; S. W. Waterhouse, secretary; I. H. Bragg, general buyer; C. G. Keehner, general credit man; W. H. Thomson, manager Portland house; S. M. Ingalsbe, manager Los Angeles house; W. A. Gauge, manager Sacramento house, and W. A. Proseus, manager San José house. The new company will continue to distribute the various lines heretofore carried by the concerns which it succeeds—namely, Wagon Makers', Blacksmiths', Horseshoers' and Trimmers' Supplies and Machinery, Hardwood Lumber, Steel, Iron and Heavy Hardware. The Wheel factory will be located in a building adjacent to that occupied by the San Francisco store. The territory in which the new company will be an active distributor of the lines above noted includes the Pacific Coast States and Territories, British Columbia, Mexico and Central America, Hawaiian and Philippine Islands, Australia, China and Japan.

CATALOGUE OF ROE & CONOVER.

ROE & CONOVER, Newark, N. J., have just issued an elaborate cloth bound catalogue of nearly 800 pages, which is excellently arranged to cover the entire range of their comprehensive business. Lines referred to in the catalogue, which is carefully departmented and indexed, include general Hardware, Tools for all trades, Steam and Hot Water Boilers and Radiators, Supplies and Machinery for contractors, mills, &c., power transmission appliances and marine Hardware. In the back of the book is collected a great deal of general and special information of value to the trade, together with a large number of tables for convenient reference which will undoubtedly be appreciated by the customers of the firm.

Champion Automobile Repair Kit.

Patterson, Gottfried & Hunter, 146-150 Centre street, New York, dealers in machinery, metals, Hardware, tools and supplies, have put on the market the Champion automobile repair kit. A total of 27 different useful tools and articles are grouped in a case of high grade water proof duck, with side flaps, to roll, such as cutlery salesmen and others carry samples in. The list includes such tools as punches, wrenches, pliers, chisels, hammers, screw drivers, files, soldering copper, wire, solder &c., and is in convenient portable form, without superfluous weight.

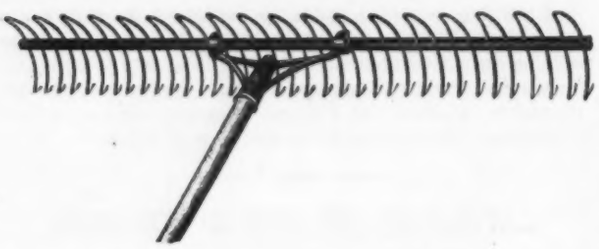
Straight Claw Brad Hammer.

The David Maydole Hammer Company, Norwich, N. Y., and 155 Chambers street, New York, has just put on the market, together with several other new sizes and kinds of hammers, the straight claw octagon brad hammer here illustrated. This hammer, like all others stamped "D. Maydole, cast steel," is forged from solid crucible cast steel and fully warranted. The special feature of this hammer is the straight claw. It is made in Nos. 926, 927 and 928, weighing, not including handle, 4, 3 and 2 ounces respectively. Great care is taken to temper each hammer by hand, each end to a different hardness to obtain the best results, the eye being left soft to avoid cracking from severe usage, the same system applying to all other hammers made by the company. All claws are carefully filed out by hand to give the best gripping power. The No. 926 hammer measures 4 inches from head to claw and in length is 11½ inches over all. The handle is second growth hickory, varnished. The hammer is finely polished, handsome in appearance and packed in boxes of six.

Straight Claw Octagon Brad Hammer.

Improved Jumbo Lawn Rake.

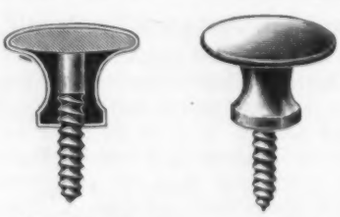
F. E. Kohler & Co., Canton, Ohio, have made improvements in their Jumbo lawn rake. They consist of changes in the socket, the braces being now spread so as to clasp the rake head further away from the center, and the socket is braced as shown in the cut. This permits shipping the handles separate from the rake heads, making a more compact package and permitting them to be shipped at the "knocked down" freight rate. The rake is made in two sizes, with 36 and 42 teeth.



Improved Jumbo Lawn Rake.

New Patented Brass Screw Knob.

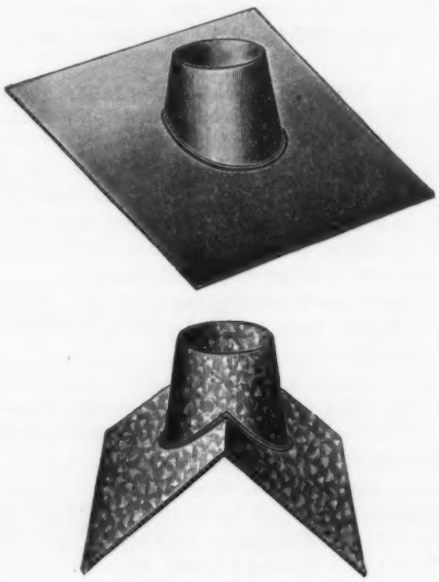
The Berbecker & Rowland Mfg. Company, Waterville, Conn., is just putting on the market a new patented brass screw knob, which is herewith illustrated. The underneath part, or base, of the head is made of sheet steel stamped by a special process, and through the hole in same a screw is driven in a manner that prevents its turning. The neck is made of a shell of sheet brass and the brass top is then closed over the neck. The head is therefore solid and it can be driven into place with a hammer, the common practice, without denting it. The head is highly burnished and it makes a practical and solid knob at a less expense than if made of solid brass. It is now made in ⅞, ¾, ⅝, 9-16, ½ and 7-16 inch diameter of head. The manufacturer claims that this is the best knob on the market at the price and that a considerable saving in the cost of stock is made over the former style of solid brass head.



New Patented Brass Screw Knob.

Star Roof Flanges or Rain Proofs.

The accompanying cuts illustrate roof flanges, or rain proofs, for the sides and combs of roofs, made in both heavy japanned sheet steel and heavy galvanized iron. These are warranted by the manufacturers as being absolutely water tight, and are constructed to answer for any required pitch of roof. Both styles are made in 5, 6 and 7 inch sizes by Hemp & Co., Second street, near Chouteau avenue, St. Louis, Mo.



Star Roof Flanges or Rain Proofs.

The Dana Mop Wringer.

The Dana Mfg. Company, Cincinnati, Ohio, is introducing the mop wringer shown herewith. The tub is of white pine with heavy flat iron rust proof hoops, manufactured in the company's shop, black papered to keep it clean and neatly labeled. The rollers are of solid maple and are suspended on steel cross bars. In operation the left foot is placed on the foot rest on the left side of the

The Dana Mop Wringer.

Wrought Iron Hinges—
Strap and T Hinges, &c., list December 20, 1904:
Light Strap Hinges...70%
H'vy Strap H'g's...75&5%
Light T Hinges.....65%
Heavy T Hinges.....60%
Extra H'y T H'g's.70&10%
Hinge Hasps.....50%
Cor. Heavy Strap..75&5%
Cor. Ex. Heavy T.70&10%
Extra 10@10&5%
Screw Hook and Strap. 6 to 12 in..lb. 3½¢; 1¼ to 20 in..lb. 3½¢; 22 to 36 in..lb. 3¼¢
Screw Hook and Eye:
¾ to 1 inch.....lb. 6 ¢
⅝-inch.....lb. 7 ¢
½-inch.....lb. 9 ¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers....35%

Hods— Coal—

	Per doz.			
Inch	15	16	17	18
Galv. Open	$2.50	2.75	3.00	3.25
Jap. Open	$1.90	2.10	2.25	2.35
Galv. Funnel	$3.00	3.30	3.60	3.90
Jap. Funnel	$2.45	2.65	2.85	3.30

Masons' Etc.—
Avery-Caldwell Mfg. Co.:
Steel Brick.....each $1.00
Steel Mortar.....each $1.25
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—
Scovil and Oval Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
70&10@75&10%
D. & H. Scovil.....33⅓%

Handled—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Cronk's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ₱ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....₱ doz. 66⅔%
Junior Size.....₱ doz. $4.00
Ft. Madison Sprouting Hoe..₱ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....
75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.15
B. B., 6½ in.....$3.35
Acme Weeding.....₱ doz., net, $4.35
W. & C. L'tning Shuffle Hoe,₱doz.$4.85

Hoisting Apparatus—
See *Machines, Hoisting.*

Holders— Bit—
Angular, ₱ doz. $24.00.....45&10%

Door—
Bardsley's.....45%
Empire.....50%
Pullman.....50%

File and Tool—
Nicholson File Holders and File Handles.....33⅓@40%

Fruit Jar—
Triumph Fruit Jar Holder, ₱ gross, $10.80; ₱ doz.....$1.25

Hones—Razor—
Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—
Bird Cage, Reading.....40%
Bird Cage, Sargent's List.....60&10%
Ceiling, Sargent's List, Nos. 29, 32, 33, 129, 132, 133 and 135.....50&10&10%
Clothes Line, Reading List.....40%
Clothes Line, Sargent's List.50&20&10%
Coat and Hat, Sargent's List...50&10%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—
Belt.....80&10@..%
Wire C. & H. Hooks:.....
75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..75&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co. Molding.....75%
Wire Goods Co.:
Acme.....60&10%
Chief.....70%
Crown.....75%
Czar.....65%
V Brace.....75%
Czar Harness.....50&10%

Wrought Iron—
Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton.....*doz. $1.05@$1.25*
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—
Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $4.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz.$1.50
Grass, common grades, all sizes, per doz.....*$1.30*
Whiffletree.....*lb. 5¾@6¢*
Hooks and Eyes:
Brass.....60&10&5@60&10&10%
Malleable Iron..70&10@70&10&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....35%
Covert Saddlery Works' Self Locking Gate and Door Hook.....60%
Ft. Madison Cut-Easy Corn Hooks, ₱ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—
See *Nails, Horse.*

Horseshoes—
See *Shoes, Horses.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....*ft. 5 @ 6 ¢*
3-ply Standard.....*ft. 8 @ 9 ¢*
4-ply Standard.....*ft. 10 @11 ¢*
3-ply extra.....*ft. 11 @13 ¢*
4-ply extra.....*ft. 14 @16 ¢*
Cotton Garden, ¾-in., coupled:
Low Grade.....*ft. 8 @ 9 ¢*
Fair Quality.....*ft. 10 @11 ¢*

Irons— Sad—
From 4 to 10.....*lb. 3¾@3 ¢*
B. B. Sad Irons.....*lb. 3¼@3½¢*
Chinese Laundry....*lb. 4¾@5 ¢*
Chinese Sad.....*lb. 4 @4¼¢*
Mrs. Potts', cents per set:

Nos.	50	55	60	65
Jap'd Tops	62	59	72	69
Tin'd Tops	65	62	75	72

New England Pressing..lb. 3¾@4¢

Pinking—
Pinking Irons.....*doz. 50@60¢*

Irons, Soldering
See *Coppers.*

Jacks, Wagon—
Covert Mfg. Co.:
Auto Screw.....30&2%
Steel.....45%
Covert's Saddlery Works:
Daisy.....60&10%
Victor.....60%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Kettles—
Brass, Spun, Plain.....*20@25%*
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....50%

Corn—
Withington Acme, ₱ doz., $2.65;
Dent, $2.75; Adj. Serrated, $2.20;
Serrated, $2.10; Yankee No. 1, $1.50;
Yankee No. 2, $1.15.

Drawing—
Standard List.....*75@75&10%*
C. E. Jennings & Co., Nos. 45, 46..60%
Jennings & Griffin, Nos. 41, 42.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—
Serrated Edge, per doz..$5.75@6.00
Iwan's Sickle Edge.....₱ doz. $9.50
Iwan's Serrated.....₱ doz. $10.00

Mincing—
Buffalo.....₱ gro. $13.00

Miscellaneous—
Farriers'.....*doz. $3.00@3.25*
Wostenholm's.....₱ doz. $3.00@3.25

Knobs—
Base, 2½-inch, Birch, or Maple, Rubber tip.....*gro.$1.15@1.20*
Carriage, Jap., all sizes.....
gro. 40@45¢
Door, Mineral.....*doz. 65@70¢*
Door, Por. Jap'd.....*doz. 70@75¢*
Door, Por. Nickel..*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c.15%
Picture, Sargent's.....60&10&10%

Lacing, Leather—
See *Belting, Leather.*

Ladders, Store, &c.—
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—
L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....50&10%

Lanterns— Tubular—
Regular Tubular, No. 0.....
doz.$4.45@4.70
Lift Tubular, No. 0.....
doz.$4.75@5.00
Hinge Tubular, No. 0.....
doz.$4.75@5.00
Other Styles.....*40@40&5%*

Bull's Eye Police—
No. 1, 2¾-inch.....*$2.75@3.00*
No. 2, 3-inch.....*$3.00@3.25*

Lasts and Stands, Shoe—
Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—
Roggin's Latches, with screw..
doz. 35@40¢

Door—
Cronk & Carrier Mfg. Co., No. 101, ₱ doz. $2.90
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—
Small.....*doz. 50¢; large, 60¢*
Covert Mfg. Co., Cotton and Hemp.45%

Lifters, Transom—
R. & E.....33¼%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	$2.20	2.00	1.70
75 feet	$1.80	1.70	1.30

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....₱ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Anniston Waterproof Clothes, 50 ft., ₱ gro., $24.00; Gilt Edge, $22.00; Air Line, $22.00; Acme, $17.00; Alabama, $15.00; Empire, $14.00; Advance, $13.50; Oriole, $20.00; Albemarle, $13.50; Eclipse, $12.50; Chicago, $11.00; Standard, $10.00; Columbia, $8.50; Allston, $12.50; Calhoun, $11.00.

Locks— Cabinet—
Cabinet Locks...*33⅓@33⅓&7½%*

Door Locks, Latches, &c.—
NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40
Sargent & Co.....40&10%
Stowell's Steel Door Latches.....50%

Elevator—
Stowell's.....50%

Padlocks—
Wrought Iron....*75&10&5@80&60%*
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—
Ives' Patent:
Bronze and Brass.....62½%
Crescent.....50&10%
Iron.....62½%
Window Ventilating.....60%
Robison Patent Ventilating Sash Lock.....40%
Wrought Bronze and Brass.....55%
Wrought Steel.....55%
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—
Com. Upr't, without Augers.$2.00
Com. Ang'l'r, without Augers.$2.25
Swan's Improved.....40&10%
Angular.
Jennings', Nos. 1 and 4.....35&5%
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—
Reisinger Invincible Hand Power.....
₱ doz. $18.00

Fence—
Williams' Fence Machines....each, $5.50

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—
Chandler's.....12½%

Washing—
Boss Washing Machine Co.: Per doz.
Boss No. 1.....$37.00
Boss Rotary.....$54.00
Champion Rotary Banner No. 1..$54.00
Standard Champion No. 1.....$48.00
Standard Perfection.....$26.00
Cintí Square Western.....$30.00
Unæda American, Round.....$30.00

Mallets—
Hickory.....*45&5@50%*
Lignumvitæ.....*45&5@50%*
Tinners' Hickory and Apple-wood.....*doz. 45&5@50%*

Mangers, Stable—
Swett Iron Works.....50%

Mashers, Vegetable—
Western, W. G. Co., Potato....60&10%

Mats, Door—
Elastic Steel (W. G. Co.), new list..
50&10%

Mattocks—
See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—
Enterprise Mfg. Co.....25@30%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria..50&10&60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—
NOTE.—Net prices are generally quoted
Cheapest.....*all sizes, $1.85@2.00*
Cheap.....*all sizes, $2.00@2.50*
Better Grade..*all sizes, $2.50@4.50*

	12	*14*	*16*	*18-in.*
High Grade	$4.50	4.75	5.00	5.25

Continental.....60&5%
Great American.....70%
Great American Ball Br'g, new list..70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing....60%
Pennsylvania, Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel....70&10&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M, S, C, K, T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list..50%

Nails—
Wire Nails and Brads, Papered, List July 20, 1899..85&10&10@90%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net
New Haven	23	21	20	19	18	...40&5%
Putnam	23	21	20	19	18	....33⅓%
New Putnam	19	18	17	16	16	..10&10%
Western						₱ lb 8½¢

Jobbers' Special Brands.....
per lb. 8½@10¢

Picture—

	1½	2	2½	3	3½ in.
Brass H'd.	.55	.55	.60	.70	.. gro
Por. Head	1.10	1.10	1.10	..	gro

Nippers—
See *Pliers and Nippers.*

Nuts—
Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, Blank or Tapped..$5.00
Hexagon, Blank or Tapped..$5.15
Square, Blank, C. T.....$5.30
Hexagon, Blank, C. T....$6.05
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square, Blank.....$5.30
Hexagon, Blank.....$5.20
Square, Tapped.....$5.20
Hexagon, Tapped.....$5.70

Oakum—
Best.....*lb.6¼@6½¢*
U. S. Navy.....*lb.5¾@6¢*
Navy.....*lb.4¼@5¢*
Plumbers' Spun Oakum..*2½@3¢*
In carload lots ⅛¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....*50&10%*
Tin or Steel.....*65&10@70%*
Zinc.....*65&10@70%*
Chase or Paragon:
Brass and Copper.....*50&10%*
Tin or Steel.....*65&10%*
Zinc.....*65&10%*
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13.....20%
Malleable, Hammers' Old Pattern, Nos. 1, 2 and 3.....50%
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@63&10%

Openers— Can—
Per doz.
Sprague, Iron Handle....*30@35¢*
Sprague, Wood Handle...*35@40¢*
Sardine Scissors.....*$1.75@3.00*
National.....50&10%
Stowell's Sprague.....₱ doz. 35@45¢
Vim Tin Shear and Can Opener, ₱ doz., 75c.; per gro., $7.50

Egg—
Nickel Plate.....₱ doz., $2.00
Silver Plate.....₱ doz., $4.00

Packing—
Asbestos Packing, Wick and Rope.....*lb. 14@16¢*

Rubber—
(Fair quality goods.)
Sheet, C. I.....*8@10¢*
Sheet, C. O. S.....*9@13¢*
Sheet, C. B. S.....*10@14¢*
Sheet, Pure Gum.....*50@65¢*
Sheet, Red.....*40@50¢*
Jenkins' '96..₱ lb 80¢.....25@25&5%

Miscellaneous—
American Packing...*lb. 7@10 ¢*
Cotton Packing.....*lb. 16@25 ¢*
Italian Packing.....*lb. 9@12½¢*
Jute.....*lb. 4@ 4½¢*
Russia Packing.....*lb. 8@11 ¢*

Pails, Creamery—
S. S. & Co., with gauges—No. 1, $6.25; No. 2, $6.50 ₱ doz.

Pails, Water, Well, &c.—
See *Buckets.*

Pans— Dripping—
Standard List.60&10@60&10&12½%

Fry—
Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz.	$0.75	0.80	0.90	1.10	1.30

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz	$1.95	2.25	2.80	3.15

Roasting and Baking—
Regal, S. S. & Co., ₱ doz., Nos. 5, $1.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ₱ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ₱ gro.:

No.	40	50	60	140	150	160
	$30.00	35.00	42.00	34.00	39.00	46.00

Paper—Building Paper

	lb.	
Asbestos:		
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	*6¢*	5%
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.	*8¢*	7½%
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	*10c*	5%
	Per roll	
Rosin Sized Sheathing, 500 sq. ft. Light weight, 25 lbs. to roll	*35@40¢*	
Medium weight, 30 lbs. to roll	*40@45¢*	
Heavy weight, 40 lbs. to roll	*55@60¢*	
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.		
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton	*$28.00@30.00*	
Red Rope Roofing, 250 sq. ft. per roll	*$1.75*	

Tarred Paper—
1 ply (roll 500 sq. ft.). ton.....
$32.50@35.50
2 ply, roll 108 sq. ft.....*55@60¢*
3 ply, roll 108 sq. ft.....*78@85¢*

Slater's Felt (roll 500 sq. ft.) .75¢
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.) $2.75

Sand and Emery—

Flint Paper and Cloth .60@60&10%
Garnet Paper and Cloth 25%
Emery Paper and Cl'h .50&10@60%

Parers— Apple—

Advance ..... ℔ doz. $4.00
Baldwin ..... ℔ doz. $4.00
Bonanza Improved ..... each $6.50
Daisy ..... ℔ doz. $4.00
Dandy ..... each $7.50
Eureka Improved ..... each $20.00
Family Bay State ..... ℔ doz. $15.00
Improved Bay State ..... ℔ doz. $36.00
Little Star ..... ℔ doz. $5.00
New Lightning ..... ℔ doz. $7.00
Reading 72 ..... ℔ doz. $3.25
Reading 78 ..... ℔ doz. $6.25
Rocking Table ..... ℔ doz. $6.20
Turn Table '98 ..... ℔ doz. $6.00
White Mountain ..... ℔ doz. $5.00

Potato—

Saratoga ..... ℔ doz. $7.00
White Mountain ..... ℔ doz. $6.00

Picks and Mattocks—

List Feb. 23, 1899 ..... .75@75&5%
Cronk's Handled Garden Mattock, ℔ doz., $6.40 ..... 33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass ..... .60@60&10%
Iron, list Nov. 11, '85 .. .60@60&10%

Pipe, Cast Iron Soil—

Carload lots.

Standard, 2-6 in. 60%
Extra Heavy, 2-6 in. 70%
Fittings 75%

Pipe, Merchant—

	Consumers, Carloads. Steel. Blk.	Galv.	Iron. Blk.	Galv.
⅛ & ¼ in.	71%	55%	68½%	52½%
⅜ & ½ in.	75%	63%	72½%	60½%
¾ to 6 in.	79%	69%	77 %	67 %
7 to 12 in.	74%	59%	72 %	56½%

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 2 to 24 in.:

New England 68%
New York and New Jersey .71%
Maryland, Delaware, E. Pa. 75%
west. Pa. and West Va. 77%
Virginia 76%
Ohio, Michigan and Ky. 77%
Indiana 77%

NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:

	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—

Wood Planes—

Bench, first qual. ..... 40&10%
Bench, Second qual. ..... 50&10%
Molding ..... 33⅓&10%
Bailey's (Stanley R. & L. Co.) 40%
Chapin-Stephens Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality .... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Toy and German ..... 40@40&10%
Chaplin's 60%
Ohio Tool Co.:
Bench, First Quality ..... 40@40&10%
Bench, Second Quality ..... 50@50&10%
Molding ..... 33⅓@33⅓&10%
Adjustable Wood Bottom 60%
Union 60%

Iron Planes—

Bailey's (Stanley R. & L. Co.) 40%
Chapin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) 35%
Ohio Tool Co.'s Iron Planes 60%
Sargent's ..... 60&10%
Union 60%

Plane Irons—

Wood Bench Plane Irons ..... 25&10@30%
Buck Bros. 30%
Chapin-Stephens Co. ..... 30@30&10%
Ohio Tool Co. 30%
Stanley R. & L. Co. 35%
Union 50%
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse ..... ℔ doz. $8.50

Plates—

Felloe ..... lb. 3¾@4¼¢
Self-Sealing Pie Plates (S., S. & Co.) ℔ doz. $2.00 ..... 50%

Pliers and Nippers—

Button Pliers ..... .75&10@80%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.

Gas Pipe..	7	8	10	12-in.
	$2.00	$2.25	$3.00	$3.75

Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button ..... 75&10%
Cronk's 60%
Stub's Pattern 50%
Combination and others 33⅓%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers 50%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.: Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels ..... 30@30&10&10%
Chapin's Imp. Brass Cor. 40@40&10&10%
Pocket Levels ..... 30@30&10&10%
Disston's Plumbs and Levels 10%
Disston's Pocket Levels 10%
C. E. Jennings & Co.'s Iron 33⅓%
C. E. Jennings & Co.'s Iron, Adjustable ..... 40&7½%
Stanley R. & L. Co. 45%
Stanley's Duplex 35%
Woods' Extension 33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ℔ doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00 ..... 50%

Points, Glaziers'—

Bulk and 1-lb. papers, lb. 8½@9 ¢
½-lb. papers ..... *lb.* 9 @9½¢
¼-lb. papers ..... *lb.* 9¾@10¼¢

Pokes, Animal—

Ft. Madison Hawkeye ..... ℔ doz. $3.25
Ft. Madison Western ..... ℔ doz. $4.00

Police Goods—

Manufacturers' Lists ... 25@25&5%
Tower's 25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ℔ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ℔ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $9.72.... 40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25; ℔ gro., $12.00.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75; ℔ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ℔ doz. $2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can.... each. $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon's, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50
Wynn's:
Black Silk, 5 lb pail ..... each 70¢
Black Silk, ½ lb box ..... ℔ doz. $1.00
Black Silk, 5 oz. box ..... ℔ doz. $0.75
Black Silk, ½ pt. liq ..... ℔ doz. $1.00

Poppers, Corn—

1 qt., Square ..... *gro. $9.00*
1 qt., Round ..... *gro. $10.00*
1½ qt., Square ..... *gro. $11.00*
2 qt., Square ..... *gro. $13.00*

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled 40%
Tinned 35%

Powder—

In Canisters:
Duck, 1 lb ..... *each 45¢*
Fine Sporting, 1 lb .... *each 75¢*
Rifle, ½-lb ..... *each 15¢*
Rifle, 1-lb ..... *each 25¢*
In Kegs:
12½-lb. kegs *$3.50*
25-lb. kegs *$4.50*
King's Semi-Smokeless:

	Kg (25 lb bulk)	Half Kg (12½ lb bulk)	Quarter Kg (6¼ lb bulk)	Case 24 (1 lb cans bulk)	Half case (1 lb cans bulk)
	$6.50	$3.50	$1.90	$8.50	$4.50

King's Smokeless:

	Shot Gun.	Rifle.
Kg (25 lb bulk)	$12.00	$15.00
Half Kg (12½ lb bulk)	6.25	7.75
Quarter Kg (6¼ lb bulk).	3.25	4.00
Case 24 (1 lb cans bulk)..	14.00	17.00
Half case 12 (1 lb c. bk)..	7.25	8.75

Robin Hood Sm'less Shot Gun.. 50&20%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co. ..... 20@25%

Seal Presses—

Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller $21.00

Pullers, Nail—

Cyclops 50%
Miller's Falls, No. 3, ℔ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
Pelican, ℔ doz. $9.00 ..... 40&10%
Scranton, Case Lots:
No. 2B (large) $5.50
No. 3B (small) $5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots.. ℔ doz. $6.00
Diamond B, No. 3, case lots.. ℔ doz. $5.50
Giant No. 1, ℔ doz. $18; No. 2, $16.50; No. 3, $15 ..... 33⅓%
Staple Pullers 60%
Parrot Tack and Stub Puller, ℔ doz., 75c.; ℔ gro., $6.00

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.45	.60	1.05

Hay Fork, Swivel or Solid Eye. doz., ¼ in., $1.25; 5 in., $1.5

Inch	2	2¼	2½
Hot House, doz...	$0.65	.85	1.20
Inch	1¼	1½	1¾ 2
Screw, doz...	$0.16	.19	.23 .30
Inch	1¾	2	2¼ 2½
Side, doz...	$0.25	.40	.55 .60
Inch	1½	1¾	2 2½

Stowell's:
Ceiling or End, Anti-Friction.. 60&10%
Dumb Waiter, Anti-Friction.. 60&10%
Electric Light 60%
Side, Anti-Friction ..... 60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in. ..... .16@19¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in.. .16@19¢
Acme ..... 1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ℔ doz. 50%
Grand Rapids All Steel Noiseless.. 50%
Ideal ..... 70&10%
Niagara ..... 1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.. 1¾ in., 14½¢; 2 in., 16½¢
Star ..... 1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern ..... .60@60&10%
Pitcher Spout ..... .80@80&10%
Wood Pumps, Tubing, &c. .45@50%
Barnes Dbl. Acting (low list) 50%
Barnes' Pitcher Spout ..... 75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co. $16.00
Daisy Spray Pump ..... ℔ doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list) 55%
Flint & Walling's Fast Mail (low list) ..... 55&5%
Flint & Walling's Tight Top Pitcher. 80%
National Specialty Mfg. Co., Measuring, $6.00 ..... 30%
Mechanical Sprayer $6.00
Myers' Pumps (low list) 50%
Myers' Power Pumps 50%
Myers' Spray Pumps ..... 50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	2	2¼	2½	2¾
	$2.20	2.50	2.75	3.00
Inch...	3	3¼	3½	3¾ 4
	$3.30	3.60	3.85	4.10 4.40

Plunger Cup Leathers—Per 100:

Inch...	2½	3	3½	4
	$2.75	3.85	5.00	6.00

Punches—

Saddlers' or Drive, good ..... *doz. 50@75¢*
Spring, single tube, good quality ..... *$1.75@2.00*
Revolving (4 tubes) ..... *doz. $3.50@3.75*
Bemis & Call Co.'s Cast St'l Drive. 50%
Bemis & Call Co.'s Check 55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 55&10%
Steel Screw, B. & K. Mfg. Co. 50%
Tinners' Hollow, P., S. & W. Co.. 40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44 ..... 60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron .... 2¼@2¾¢
Sliding Door, Wrought Brass, 1½ in., lb., 36¢ 30%
Allith Mfg. Co.:
No. 1, Reliable Hgr. Track, ℔ ft. 5½¢
No. 2, Reliable Hgr. Track, ℔ ft. 7¢
Cronk's:
Double Braced Steel Rail.. ℔ ft. 2¾¢
O. N. T. Rail ..... 2¼¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ℔ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T., ℔ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $1.00
Lawrence Bros.:
℔ 100 ft. No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ℔ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ℔ ft., 11¢ .. 50%
None Better ..... ℔ ft. 3¾¢
Standard ..... ℔ ft. 4 ¢
Myers' Stayon Track ..... 60&10%
Richards' Mfg. Co.:
Common 1 x 3-6 in., $2.25; 1¼ x 3-16, $2.50; 1¼ x 3-16, $2.75.
Special Hinged Hanger Rail.. 60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 35, 20¢.
Safety Door Hanger Co.'s Storm King Safety 60%
Safety Door Hanger Co.'s U. S. Standard 60%
Stowell's:
Cast Rail ..... ℔ ft. 1¾¢
Steel Rail, Plain 25%
Wrought Bracket, 1 3-16 in.... ℔ ft. 3¢
Wrought Bracket, 1½ x 5-16.. ℔ ft. 7¢
Swett's Hylo, ℔ ft. 11¢ 60%
P. L. B. Steel Rail ..... ℔ 100 ft. $3.00
No. 0, 1 x 3-16 ..... ℔ 100 ft. $2.75

Rakes—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Fort Madison Red Head Lawn.... $3.25
Fort Madison Blue Head Lawn.... $2.70
Jackson Lawn, 29 and 30 teeth, ℔ doz., net $4.25
Cronk's:
New Champion Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.. 75%
Victor Garden, ℔ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00 ..... 80%
Queen City Lawn, ℔ doz., 20 teeth, $3.45; 24, $3.60 ..... net.
Anticlog Lawn, ℔ doz. $4.00
Malleable Garden ..... 70&10%
Kohler's:
Lawn Queen, 20-tooth ..... ℔ doz. $3.45
Lawn Queen, 24-tooth ..... ℔ doz. $3.60
Paragon, 20-tooth ..... ℔ doz. $2.75
Paragon, 24-tooth ..... ℔ doz. $3.00
Steel Garden, 14-tooth.... ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00
Weldless Steel Garden ..... 75&5%

Rasps, Horse—

Disston's 75%
Heller Bros. ..... 70&5@70&10&5%
McCaffrey's American St'd... 60&10&5%
New Nicholson ..... 70&10@75%
See also Files.

Razors—

Boras—I C. 60%
Fox Razors, No. 42.. ℔ doz. $20.00 } 40 Dis.
Fox Razors, No. 44.. ℔ doz. $20.00 } 40 Dis.
Fox Razors, No. 82, Platina... ℔ doz. $25.00 } 40 Dis.
Red Devil 50%
Silberstein:
Carbo Magnetic $18.00
Griffon, No. 65 ..... $15.00
Griffon, No. 00 ..... $12.00
All other Razors 40%

Safety Razors—

Silberstein 40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo 20%
Aluminum, German Silv., Bronze. 25%
1240 N, 124 N 20%
3004 N, 06 N, 6 RM, G 9 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P 33⅓%
2904 PN 33⅓%
0924 N 33⅓%
02084 N 33⅓%
002904 PN 33⅓%
802 N 33⅓%
986 PN, 2904 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN. 33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed ..... .70&10%
Bronzed 75%

Revolvers—

Single Action ..... .95¢@$1.00
Double Action, except 44 cal. $1.95
Double Action, 44 caliber $2.00
Automatic $3.45
Hammerless $4.00
Thayer Robertson & Cary:
Automatic ..... each $2.75
Hammerless ..... each $3.25

Riddles, Hardware Grade

16 in. ..... *per doz. $2.25@$2.50*
17 in. ..... *per doz. $2.50@$2.75*
18 in. ..... *per doz. $2.75@$3.00*

Rings and Ringers—Bull Rings—

	2	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.00	1.15	1.40 doz.

Rea's Improved Self-Piercing, Copper, 2 in., ℔ doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes $4.00@4.50
Hill's Ringers, Gray Iron ..... *doz. 50@55¢*
Hill's Ringers, Malleable Iron.. doz. 70@75¢
Blair's Rings..per gro. $4.75@5.25
Blair's Ringers..per doz. $0.60@ .65
Brown's Rings..per gro. $5.00@5.50
Brown's Ringers..per doz. $0.60@ .65

Rivets and Burrs—

Copper ..... .50&10@50&10&5%
Iron or Steel ..... 75@75&5%

Rollers—

Acme, Stowell's Anti-Friction 50%
Barn Door, Sargent's list 60%
Cronk's Stay No. 65, $0.90; No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56 ..... $0.84
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%
Stowell's Barn Door Stay.. ℔ doz. $1.00
Swett's Anti-Friction 50%
Screw and Spike Stay ..... ℔ doz. 65¢
Hinge Adjustable Stay ..... ℔ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger: Pure ..... *lb., 12½¢*
Sisal, 7-16 in. diam. and larger: Pure ..... *lb., 10¢*
Sisal, 7-16 in. diam. and larger: No. 2 quality ..... *lb., 8¢*
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Mixed ..... *lb., 8¢*
Pure ..... *lb. 10¢*
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred: Mixed ..... *lb., 8¢*
Pure ..... *lb. 10¢*
Best, ¼-in. and larger. 16½@18¢
Medium, ¼-in. and larger. 15½@16½¢
Common, ¼-in. and larger.. 10¢
In coils, ½¢ advance.
Jute Rope:
Thread No. 1, ¼-in. & up. lb. 6¼¢
Thread No. 2, ¼-in. & up. lb. 5¾¢
Old Colony Manila Transmission Rope ..... ℔ lb 17¼¢

Wire Rope—

Galvanized ..... 57½&8½%
Plain ..... 45&8½%

Ropes, Hammocks—
Covert Mfg. Co.:
Jute 50%
Sisal ..... 30&10%
Covert Saddlery Works..... 60&5%

Rulers, Desk—
Stimpson & Son:
Boxwood and Maple..... 30&10%

Rules—
Boxwood ..... *60&10&10%*
Ivory ..... *35&10@35&10&5%*
Chapin-Stephens Co.:
Boxwood ..... 60@60&10%
Flexifold ..... 27½&10&10&2½%
Ivory ..... 35@35&10&10%
Miscellaneous ..... 50@50&10&10%
Combination ..... 55@55&10%
Stationers' ..... 10@10&10%
Keuffel & Esser Co.:
Folding, Wood..... 35&10%
Folding, Steel..... 33⅓&10%
Lufkin's Steel..... 50&10%
Lufkin's Lumber..... 60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag..... 40%
Zig Zag, Pin Joint..... 42½%
Upson Nut Co.:
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Band ..... 50&10@60%
Cross Cuts..... 35&5%
Mulay, Mill and Drag..... 50%
One-Man Saw..... 40%
Wood Saws..... 40%
Hand, Compass, &c..... 40%
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth..50%
Band, 2 to 14 in. wide..... 60%
Band, ¼ to 1¼..... 60%
Crosscuts 50%
Narrow Crosscuts..... 55%
Mulay, Mill and Drag..... 50%
Framed Woodsaws..... 35%
Woodsaw Blades..... 35%
Woodsaw Rods..... 25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination..... 30%
Compass, Key Hole, &c..... 25%
Butcher Saws and Blades..... 35%
C. E. Jennings & Co.'s:
Back Saws..... 25%
Butcher Saws..... 30%
Compass and Key Hole Saws..35&5%
Framed Wood Saws..... 30%
Hand Saws..... 20&2½%
Wood Saw Blades..... 35%
Millers Falls:
Butcher Saws..... 15&10%
Star Saw Blades..... 15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws..... 50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts..... 40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws..... 50%
Back Saws..... 25@25&7½%
Butcher Saws..... 35@35&7½%
Hand Saws..... 25@25&7½%
Hand Saws, Bay State Brand..... 40%
Compass, Key Hole, &c..25@25&7½%
Wood Saws..... 35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades..... 35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws..... 50%

Hack Saws—
Atkins' Hack Saw Blades A A A..25%
Disston's:
Concave Blades..... 25%
Keystone 40%
Hack Saw Frames..... 30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.... 40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades..... 40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades..... 35%
Diamond Hack Saw Frames..... 50%
Star Hack Saws and Blades..... 15&10%
Sterling Hack Saw Blades....30&10&10%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades..... 25%
Victor Hack Saw Frames..... 40%

Scroll—
Barnes' No. 7, $15..... 25%
Barnes' Scroll Saw Blades..... 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18.. 30%
with boring attachment, $20..
Lester, complete, $10.00..... 15&10%
Rogers, complete, $4.00..... 15&10%

Scalers, Fish—
Covert's Saddlery Works..... 60&10%

Scales—
Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ¼ oz. to ½ lbs. ..... dos. $5.50
Two Platforms, ¼ oz. to 8 lbs. ..... doz. $16.00
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales..... 50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2..... 60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables..... 50%
"The Standard" R. R. and Wagon.50%

Scrapers—
Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship....Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co.), $6.00..... 45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—
Air Line Pattern Screens..... 60&10%
Flyer Pattern Screens..60&10@60&10&5%
Maine Screen Frames..... 40&10&5%
Perfection Screens..... 60&10@60&10&5%
Phillips' Screen Frames...60&5@60&10%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1½, $3.00@3.25; 1¼..$3.50@3.75
Bench, W'd, Beech..doz. 30@30&5%
Hand, Wood ..... 30@30&5%
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand..30@30&10%
Ohio Tool Co., Bench and Hand..30%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 ..... 75&15@—%
Coach, Gimlet Point, list Oct. 1, '99..... 75&10@—%
Hand Rail, list Jan. 1, '81.... 70&10@75%

Jack Screws—
Standard List..... 80@80&5%
Millers Falls..... 50&10&10%
Millers Falls, Roller..... 50&10%
P. S. & W..... 50%
Sargent..... 70&10%
Swett Iron Works.....75&10@60&5%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron.... 50@50&10%
Flat or Round Head, Brass.... 50@50&10%

Set and Cap—
Set (Iron)..... 80%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap..... 75%
Hex. Hd. Cap..... 75%
Rd. Hd. Cap..... 60&10%
Fillister Hd. Cap..... 60&10&10%

Wood—
List July 23, 1903.
Flat Head, Iron.....87½&10@..%
Round Head, Iron...85 &10@..%
Flat Head, Brass...85 &10@..%
Round Head, Brass..80 &10@..%
Flat Head, Bronze...77½&10@..%
Round Head, Bronze.75 &10@..%
Drive Screws..... 87½&10%

Scroll Saws—
See *Saws, Scroll.*

Scythes— *Per doz.*
Grass, No. 1, Plain Finish...$6.25
Clipper, Bronzed Webb....$6.50
No. 3 Clipper, Pol'd Webb..$6.75
No. 6 Clipper & Solid Steel..$7.00
Bush, Weed & Bramble, No. 2.$6.50
Grain, No. 1..... $8.25
Bronzed Webb, No. 1..... $8.50
Nos. 3 & 4 Clipper, Grain..$8.75
Solid Steel No. 6..... $9.25

Seeders, Raisin—
Enterprise ..... 25@30%

Sets— Awl and Tool—
Aiken's Sets, Awl and Tools:
No. 20, ℔ doz., $10.00..... 60&10%
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $13; 3, $12; 4, $9; 5, $7..... 50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel..... ℔ doz sets $9.00

Sets, Nail—
Octagon ..... gro. $3.50@3.75
Buck Bros..... 37½%
Cannon's Diamond Point, ℔ gro.$12.40%
Mayhew's ..... ℔ gro. $9.00
Snell's Cor'gated, Cup Pt...℔ gro. $7.20
Snell's Knurled, Cup Pt....℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt.℔ gro. $7.50

Rivet—
Regular list..... 75@75&10%

Saw—
Aiken's:
Genuine ..... 50&10%
Imitation ..... 50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut..... 30%
Plate 20%
Disston's Star and Monarch..... 25%
Morrill's No. 1, $15.00..... 50%
Nos. 3 and 4, Cross Cut, $20.00...50%
No. 5, Mill, $30.00..... 50%
Nos. 10, 11, 95, $15.60..... 50%
No. 1 Old Style, $10.00..... 50%
Special, $16.25..... 50%
Giant Royal Cross Cut.....℔ doz. $8.00
Royal, Hand..... ℔ doz. $4.50
Taintor Positive..... ℔ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30..... ℔ doz., net, $24.00
Smith & Hemenway Co.'s..... 60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co..... 70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz..... $1.50
Mounted Kitchen Sand Stone, ℔ doz..... $1.50
Natural Grit Carving Knife Hones, ℔ doz..... $3.00
Quick Cut Emery Carving Knife Hones, ℔ doz..... $1.50
Quick Edge Pocket Knife Hones, ℔ doz..... $2.50
} 40%

Skate—
Smith & Hemenway Co..... 20%

Shaves, Spoke—
Iron ..... doz.$1.10@1.25
Wood ..... doz.$1.75@2.25
Bailey's (Stanley R. & L. Co.)..... 45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's, ℔ doz. $9.00..... 15&10%
Wood's F1 and F2..... 50%

Shears—
Cast Iron.. 7	8	9 in.	
Best $16.00	*18.00*	*20.00*	*gro.*
Good ...$13.00	*15.00*	*17.00*	*gro.*
Cheap ..$5.00	*6.00*	*7.00*	*gro.*

Straight Trimmers, &c.:
Best quality Jap....70@70&10%
Best quality, Nickel..60@60&10%
Fair quality, Jap....80@80&5%
Fair quality, Nickel..75@7"&10%
Tailors' Shears..... 40@40&5%
Acme Cast Shears..... 40@40&5%
Heinisch's Tailor's Shears..... 10%
Wilkinson's Sheep, 1900 list..... 50&10%

Tinners' Snips—
Steel Blades..... 20&5@20&10%
Steel Laid Blades.....40&10@50%
Forged Handles, Steel Blades, Berlin, 50@50&5%
Heinisch's Snips..... 40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in..... 50%
Niagara Snips..... 40%
P., S. & W. Forged Handles..... 30%

Pruning Shears—
Cronk's Hand Shears..... 33⅓%
Cronk's Wood Handle Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00..... 25%
Disston's Pruning Hook, ℔ doz. $12.00..... 25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P. S. & W. Co..... 33⅓%
Wilkinson's Hedge, 1900 list..... 50&10%
Wilkinson's Lawn and Border..... 50%

Sheaves—Sliding Door—
Stowell's Anti-Friction..... 50%
Patent Roller, Hatfield's, Sargent's list..... 70&10%
Reading 40%
R. & E. list..... 33⅓%
Wrightsville Hatfield Pattern..... 80%

Sliding Shutter—
Reading list..... 40%
R. & E. list..... 33⅓%
Sargent's list..... 10&10%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge ..... 65&10%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge.25&10%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge ..... 20&5%
Climax, Union, League, New Rival, 10 and 12 gauge..... 25&5%
Climax, Union, League, New Rival, 14, 16 and 20 gauge..... 20&5%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge..... 33⅓&5%
Robin Hood, Low Brass..... 20&10%
Robin Hood, High Brass..... 30&10%

Shells, Loaded—
Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade..... 40&5%
Loaded with Smokeless Powder, high grade..... 40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass..... 50%
Comets, High Brass..... 50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron ..... per keg $4.00
Steel ..... per keg $3.75
Burden's, all sizes..... ℔ keg $3.90

Shot—
Drop, up to B, 25-lb. bag....$1.70
Drop, B and larger ..... per 25-lb. bag, $1.95
Buck, 25-lb. bag..... $1.95
Chilled, 25-lb. bag..... $1.95

Shovels and Spades—
Association List, Nov. 15, 1902..40%

Snow Shovels—
Long Handle..... $2.25@$2.50
Wood and Mall, D. Handle ..... $2.75@$3.00

Sieves and Sifters—
Hunter's Imitation ..... gro. $10.50@11.00
Hunter's Genuine ..... per gro. $12.00@13.50
Buffalo Metallic Blued, S. S. Co., ℔ gr.:

14&16	16&18	18&20
$13.20	$13.50	$14.40

Shaker (Barler's Pat.) Flour Sifters, ℔ doz., $2.00..... 25%

Sieves, Seamless Metallic
—*Per dozen.*—

Mesh	*14*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—
Standard list..... 60@60&10%
Barnes' low list..... 60&5%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron..... 80@80&10%
Steel ..... 40@40&10%

Slates, School—
Factory Shipments.
"D" Slates..... 50@50&10%
Eureka, Unexcelled Noiseless.. 60&5 tens
Victor A, Noiseless..... 60&5 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... 40@40&10%
Covert Mfg. Co.:
Derby ..... 30&2%
High Grade..... 45%
Jockey 35%
Trojan 45%
Yankee ..... 30&2%
Yankee Roller..... 30&2%
Covert's Saddlery Works:
Crown 60%
German 60%
Model 60%
Triumph 60%
Oneida Community:
Harness Snaps, 1 inch..... 60&5%
Swivel Snaps..... 60%
Swivels 50%
Sargent's Patent Guarded....66⅔&10%

Snaths—
Scythe 50%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality..... 50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand..... 50&10%
Anchor, Rogers Brand..... 40%
Wm. Rogers & Son..... 60&10%

Miscellaneous—
German Silver..... 60@60&5%
Cattaraugus Cutlery Co.:
Seneca Silver..... 50%

Tinned Iron—
Teas ..... per gro. $5@$50
Tables..... per gro. $9.50@$1.60

Springs— Door—
Chicago (Coil)..... 40&10%
Gem (Coil)..... 20
Pullman (Coil)..... 25%
Reliance (Coil)..... 40&10%
Star (Coil)..... 30%
Torrey's Rod, 39 in..... ℔ doz. $1.10
Victor (Coil)..... 50&10&10%

Carriage, Wagon, &c.—
	Per lb
1¼ in. and Wider:	
Black	*4@4¼¢*
Half Bright	*4@4¼¢*
Bright	*4½@4¾¢*

Painted Seat Springs:
1½ x 2 x 26..... per pr. 42¢
1½ x 3 x 28..... per pr. 70¢

Sprinklers, Lawn—
Enterprise ..... 25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24..... 30%
Pleuger & Henger Mfg. Co.:
Cactus 70%
Japanese 75%
Nationals 65%

Squares—
Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron.. } *75&5@75&10%*
Rosewood Hdl. Try Square and T-Bevels ..... 60&10@10@70%
Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%
Disston's Try Sq. and T-Bevels....70%
Winterbottom's Try and Miter, No. 1, 40%; No. 2..... 50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap ..... doz. $1.00
Good Grade..... doz. $1.25
Tinned Iron..... doz. $0.75@1.25
Iron, Porcelain Lined...doz. $1.75

Staples—
Barbed Blind..... lb. 6@6½¢
Electricians', Association list.. 8&10&10&10%
Fence Staples, Plain, $2.25; Galvanized $2.55
Poultry Netting Staples..... per lb. 3¼@3½¢
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros.' 30%
C. & A. Hoffmann's..... 40%

Steelyards— .... 30@30&10%

Stocks and Dies—
Blacksmiths' ..... 50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates..... 25%
Green River..... 25%
Lightning Screw Plate..... 25%
Little Giant..... 25%
Reece's New Screw Plates..... 25%

Stoners, Cherry—
Enterprise ..... 25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit..... 60%
Gem Corundum Slips..... 60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in.$2.90
Arkansas St. No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1..... $4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in.50¢
Washita St., No. 1, 4 to 8 in.40¢
Washita St., No. 2, 4 to 8 in.30¢
Lily White Slips..... 90¢
Rosy Red Slips..... 90¢
Washita Slips, Extra..... 80¢
Washita Slips, No. 1..... 70¢
Washita Slips, No. 2..... 40¢
} EXTRA

India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%
Hindostan No. 1, R'g'lar. ℔ lb 8¢
Hindostan No. 1, Small.. ℔ lb 10¢
Axe Stones (all kinds).....
Turkey Oil Stones, Extra, 5 to 8 in.....℔ lb 80¢ } 33⅓%
Queer Creek Stones, 4 to 8 in..20¢
Queer Creek Slips.....40¢
Sand Stone.....6¢

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ℔ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots.....℔ gro. $9.00
One gross or more.....℔ gro. $7.20
Lots of 10 gross or more..℔ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S..℔ gro. $12.00
Lamoille S. S.....℔ gro. $11.00
White Mountain S. S.℔ gro. $9.00
Green Mountain S. S..℔ gro. $6.00
Extra Indian Pond S.S.℔ gro. $7.50
No. 1 Indian Pond S.S.℔ gro. $7.00
No. 2 Indian Pond S.S.℔ gro. $4.50
Leader Red End S. S.℔ gro. $4.50
Quick Cut Emery....℔ gro. $10.00
Pure Corundum,.....℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8 } 33⅓%
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers.....℔ gro. $9.00

Stops— Bench—

Millers Falls.....15&10%
Morrill's, ℔ doz., No. 1, $10.00.....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....60@60&10%

Plane—

Chapin-Stephens Co.....20%

Straps— Box—

Cary's Universal, case lots.....25&20%

Hame—

Covert's Saddlery Works.....60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Socket .....doz. $1.60
Excelsior Stretcher and Tack Hammer Combined, ℔ doz. $6.00.....20%

Stuffers, Sausage—

Enterprise Mfg. Co.....25@25&7½%
National Specialty Co., list Jan. 1, 1902 .....30&5%

Sweepers, Carpet—

National Sweeper Co.: ℔ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated.....$72.00
Sheraton, Roller Bearing, N'kel.$60.00
Ye Mission, Roller Bearing, Oxidized Coppered.....$36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled.....$36.00
National Queen, Roller Bearing, Fancy Veneers.....$27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel.$24.00
Marion Queen, Roller Bearing, Nickeled $24.00
Monarch, Roller Bearing, N'kel.$22.00
Monarch, Roller Bearing, Jap..$20.00
Perpetual, Regular B'r'gs, N'kel.$20.00
Perpetual, Regular B'r'gs, Jap..$18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled.....$36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned.....$33.00
Auditorium (26 in. case), Roller Bearing, Nickeled.....$54.00
Mammoth (30 in. case), Roller Bearing, Nickeled.....$60.00

NOTE.—Rebates: 50c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.

Streator Metal Stamping Co.:
Model E, Sanitaire.....℔ doz $25.00
Model A, Sterling, ...℔ doz. $25.00
Model B, Sterling, Nickeled..... ℔ doz. $25.00
Model B, Sterling, Japanned..... ℔ doz. $21.00
Model C, Sterling.....℔ doz. $21.50
Model D, Sterling.....℔ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.
American Carpet Tacks..90&37½%
American Cut Tacks....90&37½%
Swedes Cut Tacks.....90&37½%
Swedes Upholsterers' Tacks... 90&50%
Gimp Tacks.....90&50%
Lace Tacks.....90&50%
Trimmers' Tacks.....90&37½%
Looking Glass Tacks.....65%
Bill Posters' and Railroad Tacks. 90&50%
Hungarian Nails.....85%
Finishing Nails.....70%
Trunk and Clout Nails....80&5%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weights.

Miscellaneous—

Double Pointed Tacks..... 90&6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list .....50&10@60%
See also Nails, Wire.

Tanks, Oil—

	Each.
Emerald, S., S. & Co,.....30-gal.	$3.40
Emerald, S., S. & Co.....60-gal.	$4.25
Queen City, S., S. & Co....30-gal.	$3.65
Queen City, S., S. & Co....60-gal.	$4.50

Tapes, Measuring—

American Asses' Skin ..50@—%
Patent Leather.....25@30&5%
Steel .....33 1-3&5%
Chesterman's .....25@25&5%
Eddy Asses' Skin.....40&10@50%
Eddy Patent Leather.....25@30&5%
Eddy Steel.....40@40&10%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list..... 35@35&5%
Pocket .....35@35&5%
Lufkin's:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather....25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger... per 100 lbs. $3.00

Thermometers—

Tin Case.....80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop.....80&2½%
Monitor, Cross Head, &c....70%

Brick Ties—

Niagara Brick Ties.....25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works.....60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Hay—

Myers' Hay Tools.....50%
Stowell's Hay Carriers.....50%
Stowell's Hay Forks.....50%
Stowell's Fork Pulleys.....50%

Miniature—

Smith & Hemenway Co.'s.....25%

Saw—

Atkins' Cross Cut Saw Tools.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%

Ship—

L. & I. J. White.....25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida.....75@75&5%
Newhouse .....45@45&5%
Hawley & Norton.....65%
Victor .....70&10%
Oneida Community Jump.....50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ℔ doz. $13.25
No. 3, Rat, ℔ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ℔ doz. $5.25; case of 72 ℔ gro. $4.70 doz.
No. 4, Mouse, ℔ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ℔ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E I.....50%

Trowels—

Disston Brick and Pointing.....30%
Disston Plastering.....25%
Disston "Standard Brand" and Garden Trowels.....35%
Kohler's Steel Garden Trowels, 5 in. ℔ gro. $4.80
Kohler's Steel Garden Trowels, 6 in. ℔ gro. $6.00
Never-Break Steel Garden Trowels.. ℔ gro. $6.00
Rose Brick and Plastering.....25&5%
Woodrough & McParlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks.....℔ doz. $16.00
Grocery .....℔ doz. $15.00
Daisy Stove Trucks, Improved Pattern .....℔ doz. $18.50
McKinney Truck.....each $10.00
Model Stove Trucks.....℔ doz. $18.50

Tubs, Wash—

No.	*1*	*2*	*3*
Galvanized, per doz.	*$4.25*	*4.75*	*5.25*

Galvanized Wash Tubs (S., S. & Co.):

No.	1	2	3	10	20	30
Per doz., net.	$5.70	6.30	7.20	6.60	7.20	8.10

Twine, Miscellaneous—

Flax Twine: *BC. B.*
No. 9, ¼ and ½-lb. Balls .22@24¢
No. 12, ¼ and ½-lb. Balls .18@20¢
No. 18, ¼ and ½-lb. Balls .16@18¢
No. 24, ¼ and ½-lb. Balls .16@18¢
No. 36, ¼ and ½-lb. Balls .15@17¢
Chalk Line, Cotton ½-lb. Balls .....25@30¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....10@18¢
Cotton Wrapping, 5 Balls to lb.. acording to quality...14½@20¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....13@14¢
American 3-Ply Hemp, 1-lb. Balls .....13@14¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....8½¢
India 3-Ply Hemp, 1-lb. Balls..8½¢
India 3-Ply Hemp, 1½-lb. Balls. 7@8¢
2, 3, 4 and 5-Ply Jute, ½-lb. Balls .....9@10¢
Mason Line, Linen, ½-lb. Bls..4¢
No. 2½ Mattress, ¼ and ½-lb. Balls .....$7¢
Wool, 3 to 6 ply....B 5½¢; A 6¢

Vises—

Solid Box.....60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard 40%
Amateur 25%
Columbian Hdw. Co.....40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting.....25@25&5%
Tiger Machinists'.....40%
Fisher & Norris Double Screw..15&10%
Hollands':
Machinists' .....40@40&5%
Keystone .....05&5@70%
Lewis Tool Co.:
Adjustable Jaw.....30%
Monarch 50%
Solid Jaw.....50%
Merrill's 20%
Millers Falls.....60&10%
Massey Vise Co.:
Clincher 40%
Perfect 20%
Lightning Grip.....20%
Parker's:
Victor .....20@25%
Regulars .....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss .....20@25%
Sargent's 40%
Snediker's X. L.....33⅓%
Stephens' 33⅓%
Williamson Mfg Co. Double Swivel.. 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ℔ doz. $30.....25%
Perfection Saw Clamps, ℔ doz....$4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip.....15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise .....60&10%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe.....40%
Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%
Williamson Mfg. Co. Double Swivel Combination Pipe.....40&5%

Wads—*Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E., 11 and larger..$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

Dis. 15%

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground.....65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles.....70%
Covered Wares
Tinned and Turned.....40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....60%
Iron Clad Ware.....70&10%
Lava, Enameled.....40&10%
Never Break Enameled.....50%

Tea Kettles—

Galvanized Tea Kettles:

Inch.....	*6*	*7*	*8*	*9*
Each	*45¢*	*50¢*	*55¢*	*65¢*

Steel Hollow Ware—

Avery Spiders and Griddles..65@65&5%
Avery Kettles.....60%
Porcelained .....50&5@50&10%
Never Break Spiders and Griddles.. 65&5%
Never Break Kettles.....60%
Solid Steel Spiders and Griddles.65&5%
Solid Steel Kettles.....60%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

Solid Zinc: ℔ doz.
Crescent, family size, bent frame.$3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.90
Cable Cross, family size, stationary protector.....$3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back.....$2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back.....$3.25

Washers—Leather, Axle—

Solid .....80&10@80&10&10%
Patent .....90@90&5%
Coil: ⅛ 10¢ — 1 11¢ — 1½ 12¢ — 1¼ 13¢ — *Inch. per box*

Iron or Steel—*Net.*

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers ...$5.20 4.30 3.00 2.80 2.60
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots..... per lb. 1¾@2¢

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4.....40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 .....50&10%

Wedges—

Oil Finish.....lb. 2.25@2.50¢

Weights—Hitching—

Covert Mfg. Co.....40&2%
Covert's Saddlery Works.....60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District...$27.50@$28.00
Southern Territory.$20.00@$23.00
Western and Central Districts .....$23.00@$25.00

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....80%
10 to 18.....80&2½%
19 to 26.....80&7½%
27 to 36.....80&2½%
Galvanized:
6 to 9.....75&5%
10 to 14.....75&7½%
15 to 16.....72½&10&2½%
19 to 26.....75%
27 to 36.....72½%
Coppered:
6 to 9.....75&5%
10 to 14.....75&7½%
15 to 18.....72½&10&2½%
19 to 26.....75&10&5%
27 to 36.....75%
Tinned:
6 to 14.....75&10&2½%
15 to 18.....75&7½%
Annealed, Steel and Tinned, on Spools ..70&10&10@70&10&10&10%
Brass and Copper on Spools... 60&5@60&10&5%
Brass, list Feb. 26, '96.....20%
Copper, list Feb. 26, '96.....25%
Cast Steel Wire.....50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24, 1903.....90&40%

Wire Cloth and Netting—

Galvanized Wire Netting..... 80&5@80&10%
Painted Screen Cloth, 100 ft., $1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft..3 ¢
Nos. 4 and 5 Mesh, sq. ft..3½ ¢
No. 6 Mesh, sq. ft.....3½ ¢
No. 8 Mesh, sq. ft.....4 ¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural ....75&10@75&10&10%
Alligator or Crocodile..70&10@75%
Baxter Pattern S Wrenches... 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern.....70%
Bull Dog.....70%
Bemis & Call's:
Adjustable S.....40%
Adjustable S Pipe.....40%
Bemis Pipe.....60%
Briggs Pattern.....40%
Combination Black.....40&5%
Combination Bright.....40%
Merrick Pattern.....50%
Boardman's 40%
Coes' Genuine Knife Hdl..40&10&5&5%
Coes' Genuine Steel Hdl..40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes', Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle .....50&10%
Elgin Wrenches, ℔ doz.....$6.25
Elgin Rethreading Attachment, one die, ℔ doz.....$6.25
Elgin Extra Dies, ℔ doz.....$3.00
Elgin Extra Jaws, ℔ doz.....$1.75
Elgin Monkey Wrench Pipe Jaws, ℔ doz.....$2.10
Gem Pocket.....30%
Hercules 70%
W. & B. Machinist:
Case lots.....50&5%
Less than case lots.....50%
Solid Handles, P., S. & W...50&10@60
Stillson 65%
Vulcan Chain.....50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ℔ gross, $7.50; ℔ doz.....$0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ℔ doz.....$48.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '02.....90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed..70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters'.....list net

Zinc—

Sheet.....per 100 lbs., $7.75@8.00